YACHTING

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Houseboating

In their dresses of gay awnings, window curtains and sumptious deck furnishings, houseboats, despite their bulkiness are picturesque craft and oh, so comfortable

FOR scenic variety there is nothing in the world comparable to the diversity of interest found in our landscapes and sea views, picturesque riverways, and mountain panoramas reached by the houseboat in only a few hours' travel. Even to one who has become more or less familiar with these routes, their charm is never ending. The Hudson may be traversed to its full length, and the Champlain canal is available should one wish to houseboat through to Lake Champlain, and thence to Montreal and the Thousand Islands, or through the Erie Canal to the Great Lakes. The Connecticut River is navigable for a long distance through some of the most picturesque portions of New England. The St. Lawrence in New York and the Shrewsbury in New Jersey in summer. The Delaware Bay, Chesapeake Bay, and the bays and inlets thence to Florida in winter, are among the chief haunts of houseboats on the Atlantic Coast. On the Pacific they are numerous in the vicinity of San Fransicso, and in the Middle West; indeed, wherever there are populous towns in the vicinity of sheltered waters.

A wide and spacious deck well furnished in wicker, with rugs and many cushions is one of the features which makes houseboating alluring

Englishmen have for the most part been content to let their houseboats lie quietly moored along the shore or at anchor in the placid waters of their inland streams; but the more restless American temperament demands in many cases some motive power.

So the advance in houseboating in America is rather along the aforementioned lines than in the direction of the type so well known in England. This is probably due, in great measure, to the difference in the social conditions of the two countries and their way of taking their pleasures. In England, when a man has gained a competency, he retires at an earlier age and devotes himself to enjoyment. If he owns a houseboat, he prefers to spend the summer on the water. Weeks and weeks are passed in this lazy drifting life, without a single visit to town or one thought of business cares. But the average American business man, though he possesses more wealth than he can possibly spend in his lifetime, is still not satisfied to relinquish the reins to others, and must keep in touch with the office, even when he is supposed to be enjoying his vacation. So if he indulges in a houseboat it must be a fast one, that he can reach the city readily. He takes his stenographer and several clerks with him, and often transacts as much business on his outing as he does when at home. But there are many Americans, and their number is constantly increasing, who find the sport sufficient in itself, and who give themselves up completely to the *dolce far niente* existence which the English have made an art, and which, perhaps, the majority of Americans are too apt to regard as a kind of laziness, but which is nevertheless a great storing-up process of nerve energy.

The houseboat need not be large nor expensive. Witness here the main cabin of a 26 footer that cost less than $600.00 to build

Many persons believe that Florida is about the only region in America where houseboats are used to any extent. It is true that in the land of sunshine and flowers are all the conditions which make the ideal place for houseboating. The sluggish waters of the rivers and bayous and the wide stretches of the lakes and lagoons, with the dense overhanging foliage of the tropical forest, make it, indeed, a wondrously pleasant place in which to enjoy an outdoor life. In Florida perhaps the houseboat is seen at its best; but it must not be thought that the southern waters monopolize all the advantages, for, as previously told, there are many localities in the North and West that are quite as well adapted to the sport. It is down on the Indian River, however, that one may find a housebcat colony flourishing under ideal conditions, and, in its social features, coming nearer to the houseboat life on the Thames than anything else in this country.

Many of these houseboaters spend four or five months of the year in traversing the Florida coast from St. Augustine to the Keys, stopping a week here and a week there; now anchored in the shade of a cypress forest; now drifting past mile after mile of deep, verdant savannas; now lying on quiet shoals in the delicate perfume wafted from orange groves and magnolia gardens. The more venturesome of the houseboatmen, when they have grown weary of the quiet of the sluggish lagoon, trail out into the

Under the blue skies of Florida especially upon the shallow, sheltered waters of the Indian River and Lake Worth houseboating is seen at its best

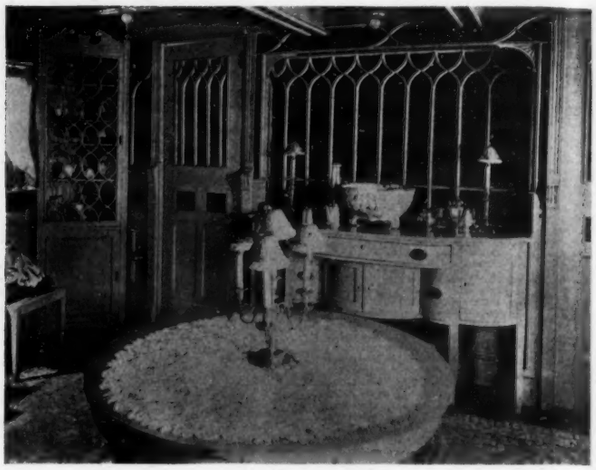
ocean and thence to Lake Worth and into Biscayne Bay, through the Cards Sound and along the tropic shores of Key Largo; drifting in and out of the intricate maze of the upper Florida keys; skirting the fringe of the untrodden mangrove swamp; rounding Northwest Cape and floating into the White River Bay, and from there right into the heart of the Everglades.

But the Florida coast is only one of many regions in the United States which offers itself to the houseboat enthusiast. Within twenty-five miles of the New York City Hall there is ten times the extent of coast line available for houseboating that exists in the vicinity of any other great capital, not excepting London herself and her vaunted Thames. In fact nowhere in all this broad land nor the world over are the opportunities for houseboating so great as in the immediate vicinity of New York. A season can be spent drifting from one vantage point to another without beginning to enjoy the many charming locations which nature has to offer to the water nomad. Englishmen are convinced that no such stream as the Thames exists for this delightful pastime, but unbiased Americans who have traveled extensively assert that from the viewpoint of natural advantages there is nothing in England to compare with those New York has to offer.

Among the particular localities which afford safe anchorage for the houseboat are those along the Sound; Great South Bay, Gardiner's Bay and Orient Point offer many attractions, while New Haven Harbor presents the advantages of the world-famous college town, about which there are excursions innumerable which will gratify the mind as well as please the sight. The quaint old town of New London comes next in point of attraction, and if the seeker for variety desires further acquaintance with coast resorts and has the temerity to venture out from the friendly shelter of the Sound, there are Martha's Vineyard and Cottage City, quaint and charming resorts that are cool, refreshing and restful; Woods Hole and Buzzard's Bay and on into the famous old whaling harbor of New Bedford.

Within a comparatively few minutes of the Brooklyn Bridge are Jamaica Bay, Rockaway Inlet, and Sheepshead Bay. Parts of the Harlem and East rivers are adapted for anchorage, and the west bank of the Hudson under the Palisades presents an ideal location, safe and out of the way of general traffic.

An ideal place for a houseboat is on Barnegat Bay, where there are miles of landlocked water, with many little creeks and inlets for anchorage. You may be at the head of the bay, or up Toms River, where communication is excellent, and fresh meats and fruits within easy reach; or you may go further from civilization, with the corresponding gains and losses. With a catboat as auxiliary, a very comfortable summer may be spent in Barnegat waters, especially if good fishing is an object.



Furniture and furnishings similar to those made for the country house are as necessary for the houseboater's comfort as they are ashore

The foyer of a home in town? Oh no, only the companionway stairs and entry aboard the steam houseboat Loudoun

Nowhere can the amateur make such a record, especially when the bluefish begin to run, while the earlier fishing is hardly less satisfactory. The streams flowing into the bay are delightful for rowboat exploration, and the wild sandy dunes between bay and ocean are by far the most picturesque part of the Jersey coast. There are already a good many houseboats in this region, and new ones are added every year; but thousands of them would not use up the fine anchorages or perceptibly crowd the more desirable havens.

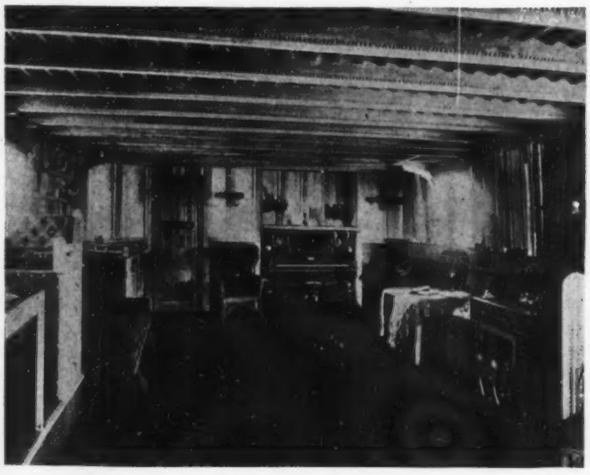
There are a large number of houseboats on the Shrewsbury River, and each year there will be additions to the fleet. The owners of these are near enough to town to make daily trips; but the river lacks the attractions of the wilderness, and the excellent fishing which Barnegat affords. In place of these are the Long Branch boats, the afternoon drives down shore and the fish suppers of Pleasure Bay, so the balance is more even than would at first seem. The Shrewsbury, though only a few miles in length, has many branches. The North Branch, or Navesink River, is a most delightful locality for houseboats. At Patterson's Cove, Clay Pitt Creek, and other places, may

always be found a number of boats during the summer season. On the South Branch, in the vicinity of Little Silver, there has been houseboats for many years. Passengers on the steamers from New York to Long Branch may locate a dozen or more of these craft at different points along the shore in among the islands after the point of the Hook has been passed on the down trip.

Lake Hopatcong is another place where houseboats are yearly built and occupied. The lake is picturesque and delightful, and the boats pretty and comfortable, but cottagers are very properly exacting about pollution of the lake, so that disposal of waste is a serious problem. Further south, in the waters of the Manasquan and Shark rivers and other places, primitive yet cosy houses are not infrequent. Up along the shores of the Sound, on the Long Island and Connecticut coasts, "the house on logs" is frequently to be observed. The Hudson opens its entire length for the houseboat with or without engines or sails, and the houseboat turning its bow up the Hudson may "hit the long trail" across the canal to Lake Champlain, wander on into the St. Lawrence, and bring up in the far-off Fundy. Such a thing has been done. But this, like the outside cruising off the Florida Keys, is venturesome houseboating—houseboating Americanized, so to speak.

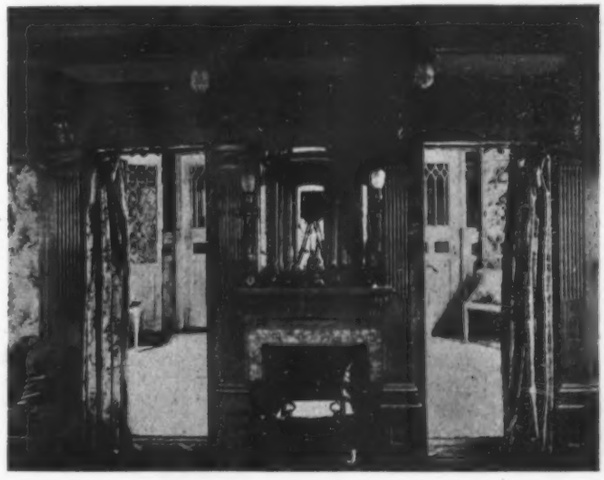
Perhaps one of the reasons why houseboating is becoming popular is the opportunity it affords the feminine part of a man's family to join him in his outing. The cramped quarters of the ordinary yacht or sailing vessel do not permit of much comfort to a woman. But in a houseboat she is at home. The roof gardens that adorn many houseboats afford the women of the family ample opportunity to potter among the flowers and plants, always so dear to one of domestic tendencies and tastes. It is, after all, a matter of fresh paint, gay awnings, rattan deck chairs and flowers, for a house boat is not the place for restraint in color. The little feminine touches here and there, the housekeeper's careful supervision, and the presence of woman herself, go far toward making it so thoroughly attractive, and altogether an ideal life.

Along a hallway such as this one is justified in the anticipation of finding a living room like this—a room with all the earmarks of home even to an open fire place. Houseboats, and the larger yachts, offer a wide field for the art of interior decorating and furnishing. Their spacious rooms and many square windows open to the craftsman the possibility of creating the homelike atmosphere so difficult to secure in the small cruising craft's cabin



One of the greatest charms of life on a houseboat is its complete freedom and independence. If the owner so wills, he can cut himself and family off from civilization as completely as does the hunter and angler who plunges into the deep woods and travels afar, simply to avoid the crowd and to be alone with nature. The disciple of houseboating has many advantages over the man who seeks the woods and mountains. A comfortable habitation with a tight roof and a dry bed is always at hand. Plenty of supplies can be carried without any extra labor, which, supplemented by fresh meat and poultry and vegetables from the market or farmhouse a few miles away, will feed the houseboat man like a king. He may take his entire family away with him for months—something that is hardly practicable for the man who is camping out. In these days the average American is so used to certain conveniences of the city that he sadly misses them when sojourning in the woods; nearly all of them can be carried along on the trip of the ordinary houseboat.

To the person who means to take a clear two months' vacation, to the business man who wants a "week-end" house and amusement, and to the ordinary autumn holiday-maker, the houseboat offers probably more change and refreshment than could be obtained by spending an equal sum on any other means of living, accommodation and amusement. Only one thing must be taken for granted or made a condition. The life ought to be more or less a lazy one. There can be no "energies and activities" of a very positive kind, very little entertaining, and in almost every case there must be a certain foregoing of very cherished household customs obtaining on land, which must not be expected on the water. Meals cannot very well be so elaborate. Rather early rising will be the rule, as it is on board a yacht; and there cannot be much entertaining, because for houseboat life a minimum of servants is essential. Servants are a difficulty always, as they hate not to have all their usual apparatus round them.



This dining saloon, which is decorated in blue and cream, forms an harmonious vista, viewed through the twin doorways, and contrasts beautifully with the mahogany trim of the music room

A Cruise from Baltimore to Boston

An October Voyage Through a Canal or Two, Some Rivers and the Sound Aboard the Knockabout Suelew

By HARRIET W. WEEDEN

FINALLY I said "why can't I go" and the wind was quite taken out of my sails when the Skipper came back with, "Well you can." The subject under discussion was bringing home the new boat, for which job several crews had gladly shipped, only to back down when the time actually arrived. We had waited as long as we thought advisable, every day being one nearer to cold weather and as *Iseulo* had been sold, and negotiations begun for buying *Suelew* (now down the Chesapeake) and we had been notified that she would lay off the Baltimore Yacht Club for a few days for inspection before going out of commission; so it was now or never.

It was only a short job to pack two blankets in one suit case, the Skipper's oilers, etc., in another, and a small dressing bag; and with long heavy coats over our arms catch a car which landed us at the New York boat just as the plank was being hauled aboard. We were on our way to Baltimore before there was time to change our minds. Long experience teaches us, that family and friends only worry if informed of such intended cruises and if two or three "trustys" are in on the deal (in case of emergency) it's much better to do the talking afterwards.

Monday, October 9th, happened to fall on a hot day for the time of year, and dressed as we were for cruising, carrying "our goods and chattels" we were "some warm" but, after making one or two wrong tacks, owing to the southern language being so decidedly different from the northern we arrived off the Club House where the boat lay at her mooring.

The Skipper was certainly disgusted with the condition of the boat, and had it not been for the fact that I saw my chance of cruising in the canals slipping away, and pursuading him to think it over until next day I am sure the night train would have taken us back to New York. However, a second good inspection showed us that structurally she was all right, and that it was simply neglect and lack of sand paper, which she stood in need of. On Tuesday morning we decided to have her towed up to the city where we could fit out for the voyage, and just before noon we lay in the slip at the foot of Market St. The Skipper had enjoyed much experience of this kind, and nothing but a coal stove for such a trip would suit him so though she was equipped with two perfectly good vapor stoves, there was no way to fasten them down, and to one who has tried it, it's no fun cooking if you have to hold the stove in one hand: so by night we had a Shipmate installed, and as the next day turned out as bitterly cold as the day before had been hot, the coal fire did feel comfy.

Wednesday was a beautiful day with hardly any wind, and as we were anxious to make as much of the ebb tide as possible, we were under way at 10:30 and drifting slowly down the Patapsco, until about 3 P. M. when off Sparrow Point, a moderate southerly came in with the tide, and we began to feel that we really had a boat under us. But by 5 o'clock it began to peter out, so we scanned the shores and the chart for a harbor. At 6.30 came to anchor in 10 ft. of water off Rocky Point, in beautiful Still Pond Cove. We were glad to turn in as soon as we had finished our dinner of roast lamb and baked potatoes which had been cooking in the oven of our range.

Daylight found us getting ready to start but before the wind breezed up, fog rolled in, and for an hour or more we did odd jobs and washed down decks. About 10 A. M. got up anchor and drifted around for another two hours, when off Howells Point the wind breezed up W. S. W. and we had a glorious run up the bay past the mouths of the Sassafras and Susquehanna rivers and saw the sands of Turkey Point, like a miniature Gay Head, gleaming red and gold in the sun. Here we ran into Elk River and from there into Back Creek. Elk River though very narrow, is well buoyed and lighted, but for the stranger drawing six feet, it is quite easy to touch bottom once in a while. As we turned Sandy Point Light the wind gave out entirely, and to all intents and purposes we were alone in a basin surrounded by trees, with no sign of life anywhere except the sound of katydids in the woods. Here we anchored close to a black buoy in twelve feet of water, but in a very narrow channel, and got dinner. Nothing had passed us during the day in the way of shipping going our way and only two or three power boats going south, so as everything remained quiet during the evening we decided there would be nothing doing through the night and turned in, but with one car open.

About 11.30 the sound of a tug was heard coming from the South, whereupon we turned out just in time to see the lights of a tow of barges coming around the point. The Skipper called to me to "stand by" and going forward got up the anchor, to be prepared for whatever might happen. By that time the tug was alongside, and the Capt. called out to the Barge, "Do you see this little thing? Don't hit it if you can help it, but don't go aground." Well there are times when we feel that we are really some size, but just then we felt very small indeed, and one of us didn't take a long breath until the last light of the last barge had disappeared into the darkness of the bend of the river. Only a minute however before "Toot toot" and this time down the creek came a big steamer straight for us. For a few minutes things looked bad, but she calmly passed us on the other side, paying no attention to the buoy. She was about 60 ft. long and 12 ft. to 15 ft. beam, loaded (as we found next day when we passed others) with baskets of tomatoes, but she drew less water than we did. Later in the night a large passenger-steamer went down, and when about 7 A. M. we saw a schooner coming up with fair wind, were glad to get up anchor and follow her to Chesapeake City, where we locked into the basin of the canal at 9 A. M. We had made only fifty miles on our homeward run, but still felt we were making good progress for the amount of wind we had had, and I looked forward to a tranquil trip through the canals.

This was Friday, October 13, but contrary to the general idea of such a combination, we had nothing in the way of hard luck except that the deck leaked, and it looked like rain. We were informed that the tug would start right away, so although we wanted a few supplies, did not dare to go farther than the Post Office after getting a jug of water, we had yet to learn that "at once" in the South, means at least an hour or two. and were quite relieved when at 10.30 the tug *Startle* came along and picked up the schooner. We in turn threw them our line, and were off on the raging canal.

The schooner was the *D. T. Purnell*, (Mr. Purnell being carved on the stern). I know he never was a sea Captain, but his severe black coat and turned down white dickey might have belonged to a Minister. His features alas, had been almost obliterated, and we could only guess what he might have looked like, when, after studying them over a 13½ mile course we arrived at Delaware City at 2 o'clock.

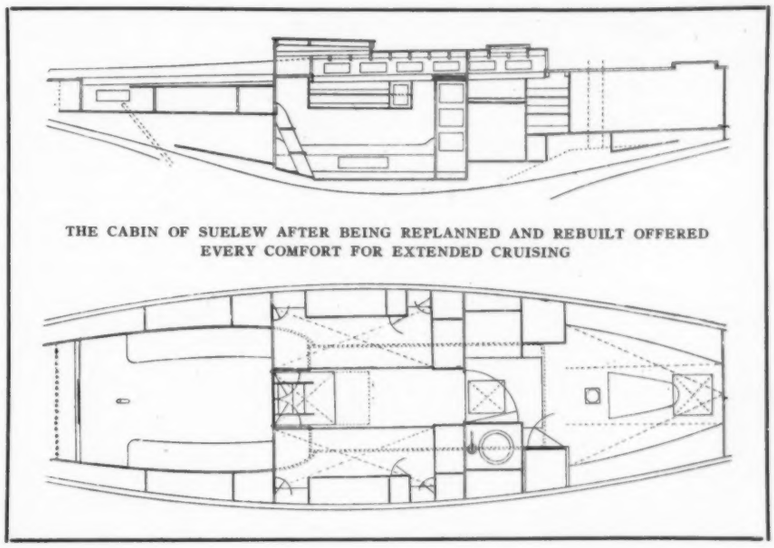
At the Pennsylvania lock came the first experience of dropping in the canal. We were crowded in with the tug, schooner, and her two boats. They could only squeeze us in corner wise, and the lock here is rough granite, not bulkheaded in. All at once we, or at least the water, started down, some one called to me to "look out for the stern," some one else shouted "look out for the bow," the Skipper was on the dock, I was alone; I had a vision of the boat hanging by

bow and stern, while the water left us there with 6500 lbs. of lead on the keel, and felt my hair lifting, when some one called down as from the top of a well "I ain't got your pass bill, got to show your pass bill." I hauled it out of my pocket waved it in the air, and screamed, "come and get it." By this time we were down, Skipper came aboard, pass bill was examined, name of boat spelled, (not by any means for the last time), and we were away feeling much the same way one did the very first time he rode in an elevator.

At Delaware City we tied up in the basin, just as it began to rain and blow fresh S. W., and going ashore, bought coal and supplies. Then went on board and listened to the rain as it poured down the windows and, saddest of all, through the deck, but it was calm in the basin, with no tide, and we were made fast to a telegraph pole. The trolly car went by our door, the shop windows were lighted on the other side of the street, and it was hard to believe we were on a sea voyage. We overhauled a box of tools stowed away under the companion ladder and found some copper tacks, and as it cleared off cold with N. W. wind, daylight found the Skipper putting a couple of rows of them around the edge of the canvas. Very expensive, and ornamental no doubt, but not very shipshape. About 8 o'clock the lock keeper came and told us there was a long string of barges coming down, and unless we wished to be delayed some hours, we'd better be going. The wind was dead ahead and blowing hard, but if we couldn't go on in such weather we had no use for the boat, so bidding good by to the *Purnell* and her crew, (Skipper, Cook and Boy) as it blew too hard for them to start, we locked out into the Delaware and warped her around the head of the docks while we tied in two reefs. Here we had a fine chance to admire the dexterity with which the tug captains handle the tows, but at a little too close quarters.

At 10.30 we cleared the deck and settled down to a hard day's work dead to windward. We bear through Philadelphia with all we could carry, but she behaved fine and we were proud of her. At Bridesburg the wind moderating, I went below, and though the decks still leaked I found the shipmate on the job, and the potatoes hot in the oven, and prepared a nice lunch for the Skipper. The rest of the afternoon was lovely, we could see the shore on both sides, beautiful summer homes and southern farm lands and when about sunset the wind died out, and the auxiliary yawl *Tradencantia* came along and took us in tow, we felt it was "the end of a perfect day." We anchored off the north end of Burlington Island after a run of 54 miles, most of it to windward.

The yawl *Tradencantia*, Captain Merrill, which, in company with some others was making a week-end cruise to this anchorage, had towed us the last couple of miles, and when picking us up had inquired our destination. Upon replying, Providence, R. I., they said they were not going so far, but would take us to a good anchorage for the night. They certainly made good, and our hook was hardly down before their boat was alongside, asking if we would come aboard to dinner. Upon our declining, "was there anything we wanted, or needed to eat or drink?" We assured them with many thanks that we needed nothing, but when they invited us to come aboard after dinner, we told them that we would be only too glad to do so if we had a tender. They quickly agreed to come and get us, which they did about eight o'clock, and never have we spent a more delightful evening when cruising in strange waters. Captain Merrill, his crew, and guests, all members of the Red Dragon Canoe Club, of Tacony, Pa., were charming companions, and while to the land lubber, the conversation might have been incomprehensible, we feasted until long after midnight, when they got the yawl under way and took us aboard.



THE CABIN OF SUELEW AFTER BEING REPLANNED AND REBUILT OFFERED EVERY COMFORT FOR EXTENDED CRUISING

Captain Merrill had built her himself, and though not in the boat building business by any means, there was no indication of the amateur, for she was as finely constructed as a boat could be, and her interior finish equal to the finest furniture.

In the cold gray dawn of the following morning, the Skipper stuck his head out of the companion hatch to have a look at the weather and was promptly hailed from the yawl with an invitation to "come over and have an eye opener. After breakfast and a short visit from Captain Merrill, he again took us in tow. After giving us his chart, which was a newer edition than ours, and setting us in the channel, he bid us goodby. We set our jib only, as the wind was fair, and the channel narrow, and arrived at Bordentown, the entrance to the Raritan canal, without further incident, at 1.30.

As it was Sunday the canal was closed until midnight, so we tied up and walked over to look at the town. It is a quaint old place but seems to have stood still since Revolutionary days, and was very depressing, so we returned to the boat, and were told that if steam was up we could be locked in any time, and sure enough at 10 o'clock we were turned out in a fine drizzle of rain, to be locked in. We tied up in the basin, and turned in again to a sound night's sleep.

In one sense of the word our troubles had just begun, for in this canal there are no tugs, only mules, and if there are none waiting (and nobody knows when there will be) and you have no power of your own, you may expect to leave —as we did. Monday morning there was not any prospects of our getting a tow so I started for the town to buy some fresh meat, as we did not intend to make any stops unless necessary. As I reached the bridge, a little power boat was locking in, and I returned to the boat to tell the Skipper to "stand by." *Maud* of Trenton, took us in tow and off we started in fine shape. Five locks, as many bridges, and we were at State St., leaving me in a dazed condition, for here you do all your own locking, snubbing etc. If you get through you do, and of course we did, but to this day I don't know how. Here *Maud* left us, taking nothing but our thanks for all her kindness, and I went up town after supplies, leaving the Skipper making a bargain to be towed to N. Y. behind a Penn. R. R. barge, for which a tug had been sent. At 1 o'clock we made fast astern of the barge. First the tug went aground, then the barge, and then we did the same. After some time of backing and filling we got another start and then came to another lock, squeezed in, the Skipper had to sit on the rudder of the barge to fend us off. We bumped the barge, then the barge bumped us, and so on until when the Captain came aft and said, "Can't tow you any farther, your deep keel makes us steer too crooked," and calmly cast off both our lines. I didn't know whether to laugh or cry, she chugged away around a bend of the river, concluded we were glad in spite of our anxiety to get along, and as we were aground, both went below, ate our neglected lunch.

Again on deck, and finding what little current there was, was with us, we got her off with the spinnaker boom, and drifting, sculling, etc., and many times getting

aground, we tied up to the bulkhead just above a bridge. The bridge tender was very nice to us, and he and his entire family found it hard to believe we drew 6 feet. In the morning we asked the name of the place, and when told (with fine scorn) "Why this is Port Mercer, where Washington crossed over, and where General Mercer was killed, and the blood spots are in that house over there" we felt very much snubbed, and drifted away, sorry we could not stay to see the blood spots.

We waited at the rail road bridge, at Prinston fifteen minutes and then the Skipper tried to see if he couldn't be a mule, and tow her: but we went aground every time we left the middle of the channel, and it was so unsatisfactory that he soon gave it up and came aboard. The wind being fair we hoisted our jib, and away we went. She kept gathering speed until it seemed we fairly flew, but soon a turn in the canal brought the wind ahead, and the first thing we did was to go aground again. The wind was fresh by this time, and things looked gloomy for us, when along came the *Agnes B.* a 35 ft. Auxiliary Yawl, Captain Chadwick, and Tony the crew, bound for Gravesend Bay. They took us in tow, and did not leave us until we were through the bridges at South Amboy.

After a hard day we tied up at the docks at New Brunswick, just inside the last lock to turn in and have a good rest, feeling that tomorrow we would start on the last leg of the trip. Wednesday morning at 6.30 locked out, and were off down the Raritan river. There being no buoys we ran aground once, hard enough to break the tow line. At 10 o'clock made sail, cast off from the *Agnes B.* and with light E. to N. E. winds becoming S. E. passed outside of Staten Island, and up through the Buttermilk channel. Off Governor Island a tug came alongside and asked if we were "going through the Gate," and when we said yes, offered to tow us through for $20, but the Skipper said that was too much, and off he went, soon to return and ask how much we wanted to give? When we said "nothing" he left us for good.

We made good time and weather until Blackwells Island was abeam, there the wind died out, and with tide ahead we were forced to tie up in the slip at E. 47th St., where we spent a most uncomfortable night. The South Easter increased until it blew hard, this with the shipping, bumped us against the dock, and the Skipper spent most of the night on deck fending her off. At 9 o'clock we were glad to get under way with two reefs, and go along. We beat up to Lawrence Point, and as we had no other reef to tie in, and she didn't make very good weather of it, went in there and tied up to the dock but she still bumped and pounded, until we were forced to go one. A lull deceived us into thinking that the blow was most over, for no sooner had we started than it took a fresh hold, and when we were just past Rikers Island could make so little headway, and as it was almost sunset, turned and ran in to the wharf in the lee of the Island. A man on the dock told us we could not tie up there, and when we asked him what we could do, he only knew we could not stay there. The Skipper went up to see the Warden, and though we assured him we wouldn't and couldn't hurt the prison, he wouldn't have us, but said we might stand down along the shore a-ways and drop our hook. This we did, (two of them) and for four hours the South Easter howled, and blew everything out straight, but we were happy, for though she rolled, she didn't bump, and we had supper, adn took a nap. About 10 o'clock I looked out and found the wind had shifted farther to the South and West. It had stopped raining, and the stars were coming out so rousing the Skipper we turned out, got up the anchors, got under way and made one good long slant down the Sound.

At Penfield Reef the Keeper was just putting out his light, and soon after, it shut in thick. Nothing more was seen except, now and then, an oyster boat, until we passed Bramford Beacon. Pretty soon we sighted a nun buoy, and thinking (if on our course) it must be Goose Island, and giving it a good berth to windward, we ran on a short way and saw looming up before us through the fog, a dock and two tugs and barges tied up to it. Thinking this a good time to stop we ran in and anchored. After straightening things out a little we warped her into the dock with the help of the bargemen, and found on inquiry that it was Joshua's Point. They were much surprised to know we were out the night before, as they had been tied up there several days on account of weather.

The fog was thick all that day, but lighting up towards night, we went to a small store near by for a few supplies, and took on water. By this time it began to rain and blow again, so we turned in to a long night's rest in a fine harbor.

Saturday morning, October 21st, cleared off about 9 A. M. wind very light S. W. The captain of the barge asked us if we could make New London that day. We said we hoped Stonington at least and bidding them goodby started slowly down the Sound. The wind shifted to W., and at sunset we were off Watch Hill. I took the tiller, and sent the Skipper below to get supper, also to get a little rest, for I knew it was to be home this time. Besides I did not think the cabin was any place for me. The old swell and the tide, setting in, and the wind setting out of the Sound, made a nasty bobble, and unless one is an acrobat, getting in and out over a bridge deck is a hazardous performance in such weather. It's too wide to step over, and with the boom slatting there is nothing to hold to when the deck is reached, and the only thing to do is to slide over, which I didn't seem to accomplish in a very graceful manner.

We jibed over at Point Judith at 8.20, and believe me it was good to be rid of the noise of the gaff squeaking, which had been with us all day. Off Wickford the wind jumped out N. W., in a heavy squall, and very cold, and from there we had all we could smother until, under the lee of Warwick Neck (knowing we would have to make the dock) as we had no tender, we put in double reef, and proceeded up the bay. Stood in to the dock, and the Skipper went ashore to find a tender, which he very soon did, rowed off, and towed the boat out to her mooring, tying her up at 2 A. M., Sunday. We had made the trip of about 335 nautical miles, from Baltimore to Riverside, in not very quick time, but well satisfied with the actual running time. All the uncomfortable incidents were forgotten and the last trip was voted the best.

He Never Took a Vacation

HE never took a vacation, he hadn't the time, he said,
It was off to the "grind" in the morning,
It was home, and the papers and bed,
'Twas the desk, or the office, or counter,
Where he fought out his battles with men,
He would work just a few years longer,
Then quit, "take it easy," and then—?

So he toiled and he moiled and struggl'd,
Nor knew that the gods of gain
Drank deep of the wine he proffer'd,
The blood of his heart and brain;
Nor knew while he piled up his millions,
And gathered his bags of gold,
His friends said at forty "he's aging,"
At fifty they said "he is old."

He never took a vacation, and at sixty they read his will,
His day for "retiring from business"
Death wrote in a codicil;
And pinn'd on the door of his office
Was a notice which grimly read,
"Out of town—on a long vacation! Indefinite" it said.

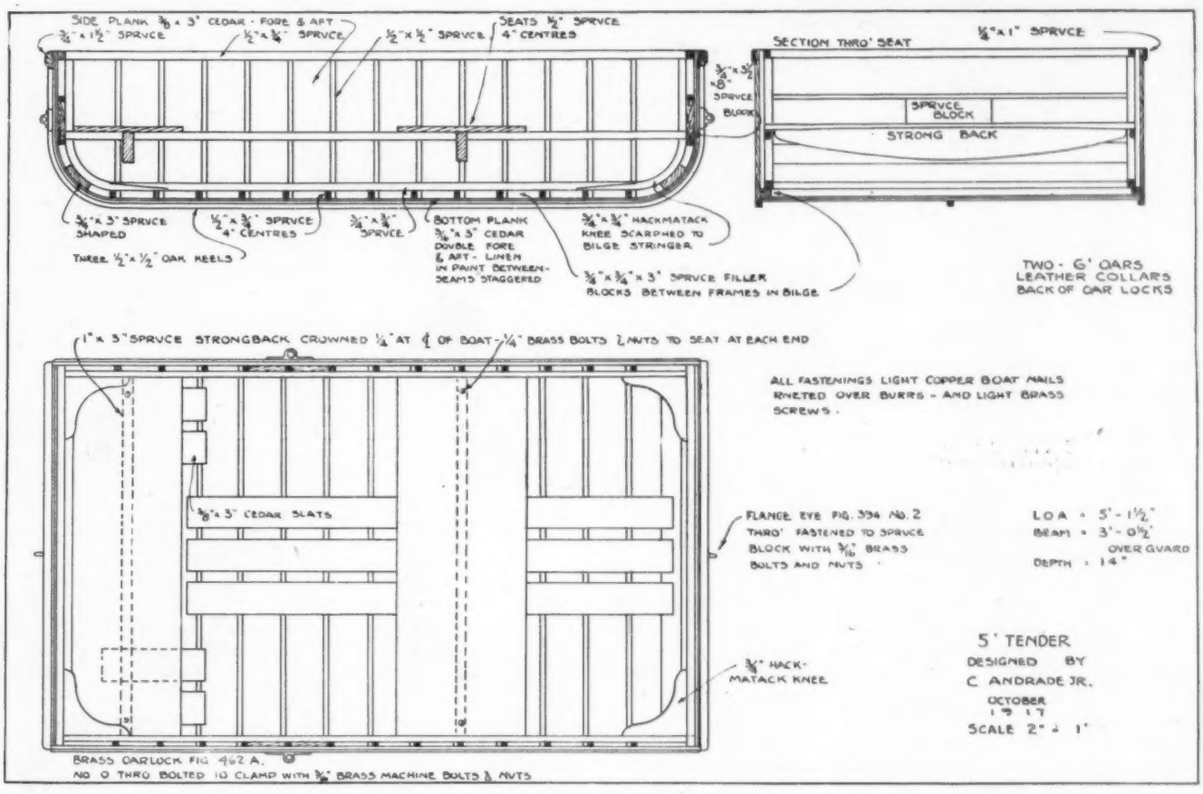
JOHN WARREN HARPER.

A Five Foot Dinghy

A Dinghy So Small That It Will Pass Through the Average Cabin Companionway, So Light That It Can Be Lifted with One Hand, and Yet Large Enough to Carry Two

C. ANDRADE, JR.

THE OARS ARE SO PLACED THAT THE CRAFT MAY BE ROWED EQUALLY WELL FROM EITHER SEAT

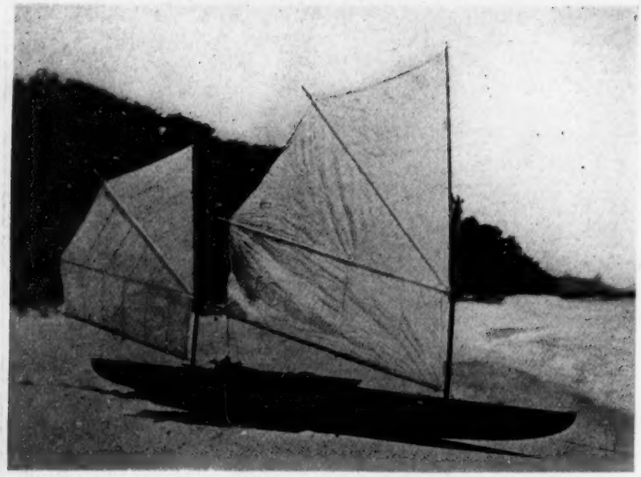

SIDE PLANK ⅜ x 3" CEDAR - FORE & AFT
⅜" x 1½" SPRUCE
½" x ¾" SPRUCE
½" x ½" SPRUCE
SEATS ½" SPRUCE 4" CENTRES
SECTION THRO' SEAT
¼" x 1" SPRUCE
¾" x 3½" x 6" SPRUCE BLOCK
SPRUCE BLOCK
STRONG BACK
¾" x 3" SPRUCE SHAPED
THREE ½" x ½" OAK HEELS
½" x ¾" SPRUCE 4" CENTRES
¾" x ¾" SPRUCE
BOTTOM PLANK ⅜" x 3" CEDAR DOUBLE FORE & AFT - LINEN IN PAINT BETWEEN SEAMS STAGGERED
¾" x ¾" HACKMATACK KNEE SCARPHED TO BILGE STRINGER
¾" x ¾" x 3" SPRUCE FILLER BLOCKS BETWEEN FRAMES IN BILGE
TWO - 6' OARS LEATHER COLLARS BACK OF OAR LOCKS
1" x 3" SPRUCE STRONGBACK CROWNED ¼" AT ℄ OF BOAT - ¼" BRASS BOLTS & NUTS TO SEAT AT EACH END
ALL FASTENINGS LIGHT COPPER BOAT NAILS RIVETED OVER BURRS - AND LIGHT BRASS SCREWS.
⅜" x 3" CEDAR SLATS
FLANGE EYE FIG. 394 NO. 2 THRO' FASTENED TO SPRUCE BLOCK WITH ⅜" BRASS BOLTS AND NUTS
LOA = 5' - 1½"
BEAM = 3' - 0½" OVER GUARD
DEPTH = 14"
⅜" HACKMATACK KNEE
5' TENDER
DESIGNED BY C. ANDRADE JR.
OCTOBER 1917
SCALE 2" = 1'
BRASS OARLOCK FIG. 462 A. NO. 0 THRO. BOLTED TO CLAMP WITH ⅜" BRASS MACHINE BOLTS & NUTS

WITH ONE, OR TWO, ABOARD THE DINGHY ROWS EASILY

THIS little dinghy is designed for use on small cruisers where there is not sufficient deck space to accommodate a large tender. From time to time various plans for such boats have appeared, but all of them are too large for use on the average 30′ cruiser.

The boat shown in the accompanying photographs and drawings works out very well in practice. Her over all length is 5′ 1½″, beam 3′ ½″ over the guard, depth from the top of the gunwale to the bottom 14″.

(*Continued on page 76*)



A little craft to be sure, but Yakaboo with her 17 feet of length, 39 inches of beam, bat winged sails, and tiny stay sail proved equal to sailing the waters of the Spanish Main

The Cruise of The Yakaboo

A Story of the Six Months' Cruise of an Adventurous Yachtsman Who Cruised Single-Handed in a 17-Foot Sailing-Canoe Along the String of Twelve Coral Isles Which Forms the Group Known as the Caribbean Islands — the Lesser Antilles.

ONE learns little of the geography of the earth from a school book. I found no mention of the vast Atlantic shelf, that extended for hundreds of miles seaward of Hatteras, where the sperm whale comes to feed in the spring. Nor was there scarcely any mention of the Lesser Antilles, a chain of volcanic peaks strung out from the corner of South America. Yet it was on these peaks that my thoughts clung like dead grass on the teeth of a rake and would not become disengaged.

My first plan was to ship on a whaler bound on a long voyage. From Barbados I would sail the 90 miles to Grenada. A wise Providence saw to it that there was no whaler bound on a long voyage for months. I did find a British trading steamer bound out of New York for Grenada. She had no passenger license, but it was my only chance and I signed on as A. B. On the top of the cargo in the hold was the crated hull of the *Yakaboo*, the pretty "mahogany coffin" as they named her, that was going to carry me 500 miles of the most delightful deep sea sailing imaginable. The *Yakaboo*—a sailing canoe 17 feet long had a beam of 39 inches. From a plan she grew in a little shop in Boothbay, and the finished hull weighed less than her skipper—147 pounds.

On the eighth day out we spoke the lonely island of Sombrero and we steamed between Saba and Statia to lose sight of land for another day—my first in the Caribbean. The warm trade winds, the skittering flying-fish chased by tuna and the rigging of awnings proclaimed we were now in the tropics. The land under a rusty old fort melted away before our eyes and we slipped into the harbor of St. George's. The houses, some of them white but more often washed with a yellow, were of the French type, their weathered red tile roofs in pleasing contrast to the green of the surrounding hills. A last breakfast with the Captain and Mate and I was ashore with my trunk and gear. The *Yakaboo* was lifted from the hold and as the nature of my visit became known I was given all possible aid in preparing for my voyage.

When all articles of my outfit, tent, clothing, provisions and numerous other supplies were compactly stowed away in the compartments, *Yakaboo* sat on the water as jaunty as ever. I have come into the habit of saying "we," for next to a dog or a horse there is no companionship like that of a small boat.

After a delightful morning spent in coasting past the green hills of Grenada, I hauled the *Yakaboo* up on the jetty of the picturesque coast town of Goyave and here loafed through the heat of the day and spent the night in the cool barracks of the native constabulary.

On the second day my log reads: "After beating for two hours in a stiff wind I found the canoe was sinking by the head and leaking in the forward compartment. I was about a mile from shore and when the water began to pour in through the centerboard well I found the bailing-plugs in the cockpit floor were useless and that every drop of water coming in was retained. Making for shore with all speed I made Duquesne Point where the canoe sank in the small surf."

After the *Yakaboo* had been bullied into some semblance of tightness we reached Tangalanga Point—the extreme northern end of Granada and I now set sail for the first time in the open sea. When I ran past the wicked reef and reached Sauteurs, the surf was piling up on the beach five feet high and the cockpit was full of water. A figure on the jetty directed me to a sloop, and my outfit was quickly transferred to the larger craft and the canoe trailed off on a long scope of line, and I jumped into the whaleboat sent out, and was soon on shore. One of the men who assisted me was Jack Wildman, a Scotch cocoa buyer who owned a whaling station on Ile-de-Caille, and he arranged for his whalers to convoy me to the island where I could stay as long as I liked and overhaul my outfit for the fight through the rest of the islands. After ten days spent in whaling on Ile-de-Caille, I resumed my cruise and late in the afternoon stepped out of my canoe on the uninhabited island of Mabouya, lying off Cariacou, where I camped for the night. The next day I ran alongside the jetty of Hillsboro on the shores of Carriacou where I enjoyed the hospitality of Whitefield Smith the Commissioner.

On the fifth day I sailed for new islands and landed on Frigate, which lies off Union. Here I found plenty of wood and soon had my campfire going. It was good to be a Robinson Crusoe again if only for a few hours. While I was cooking my chocolate a little open boat came down the wind from the eastward. As she beached two black men jumped out and a third—a white man unfolded his length and I recognized Walker, famous as the tallest man throughout these islands. The British government had but lately taken over Union Island and it had been Walker's duty to survey and divide up the land so that it could be sold in small tracts to the natives. During our conversation I admitted some knowledge of drafting upon which Walker said, "Come over and help me finish a map of the island" and so I became an inhabitant of Union for a few days.

From Union I reached Mayero, one of those romance islands where in its stagnation one can trace a past once beautiful, now pathetic. At the time of the unrest in France, a cadet branch of the Saint-Hilaire family came to this island thrived, and finally died with the ebbing fortunes of sugar cane. The last descendant of this famous old family still governs the island under a sort of feudal system.

The next day I left the island, Walker insisting upon accompanying me in his sloop. After three hours of sailing we ran shore on Cannouan to cook our luncheon. Here it was that Walker taught me a new trick. The natives of the island had come down to have a close look at the strange man who was

sailing about the islands in "de canoe." They handled everything, examined my dishes and one of them even started to open my food bags. I swore at them but they did not seem to understand.

"Oh, I'll fix 'em" said Walker, at which he swept one arm toward them and then pointing at me yelled: "Get out! or 'de mon' will put a curse on you."

The words were magic. With one bound they cleared the place and for the rest of our stay I could see the tops of their woolly heads and the gleam of their white eyeballs, curiosity and fear holding them at the nearest point of safety.

The moon swung over its zenith, I could make out little huts and trees on the island and I finally saw a small fire on the beach, and it was after eleven when I rowed up to the jetty. The curiosity of the natives was unappeased, for I tied my painter to a sloop at anchor and I was ready to turn in when a native policeman drove the crowd inshore. I had hardly fallen asleep when Walker sailed alongside and awoke me. He had lost track of me in the darkness and had been looking for me by moonlight. He left me at five in the morning, and after spending a few hours ashore with Old Bill Wallace the Nestor of whalemen in the Grenadines, I resumed my voyage and set sail for Saint Vincent and the Carib Country.

My entry into the port of Kingstown was spectacular, but hardly to my liking. The mail sloop from Bequia had spread the news of my coming and as I neared the shore, I saw that the jetty and the beach were black with black people. A rain squall came down from the hills, but it did not seem to dampen the interest of the people nor dim the eye of my camera. I had scarcely stepped out of the canoe when the crowd rushed into the water, lifted her on their shoulders and she continued on her way through a sea of bobbing heads.

Among the officials in the patio was one who pushed himself forward and gave me a package of mail. He was His Majesty's Postmaster, *Mr.* Monplaisir.

"Is there anything I can do for you?" asked H. M. P. M., addressing me by my first name. "Yes, Monty,"—he was pleased at this—"you can lead me to a fresh-water shower."

On the 22nd of March, I sailed out of the roadstead of Kingstown before a stiff breeze which the trade sent around the southern hills like a helping hand. It was only natural that the wind should become contrary off Old Woman Point where it hauled around to the North. Then it changed its mind, crawled up and down the mast a couple of times, and died out in a hot gasp.

So far, I had done but little rowing in smooth waters and the sense of stealing quietly along the lee coast to enjoy its intimacy was a new pleasure. All these islands, especially the lower ones, have more or less the same formation—Grenada, Saint Vincent, Saint Lucia, and Dominica. This information consists of a backbone which rises to a height of from two to three thousand feet and is the main axis of the island with spurs which run down to the Atlantic and the Caribbean, east and west, like the veins of a leaf.

As I rowed out into the bay, I nearly ran down a diminutive craft sailing across my bows. There was something about that double rig—the *Yakaboo* turned around to look at it as we slid by—and sure enough it was *Yakaboo's* miniature! Not far off a small grinning boy sat on a small bobbing catamaran. He had seen the *Yakaboo* in Kingstown and had made a small model of her—and so she was known to a place before she herself got there. I left a shilling on the deck of the *Little Yakaboo*, but she was not long burdened with her precious cargo.

Rounding DeVolet Point, which corresponds to Tangalanga on Grenada, and I once more felt the roll of the trades. A sea slopped over the gunwale and wet my leg which I drew into the canoe. We were now all island savages together holding up our ticklish craft by the play of our bodies. I looked across the channel to Saint Lucia with her twin Pitons rising distinct, thirty miles away.

March 30th found me once more in the *Yakaboo* rowing out of the bay of Chateau Belaire half an hour after sunrise. I had a lurking suspicion that I had made a grievous error when I had designed the *Yakaboo*; I had perhaps erred on the side of safety and had given her a too powerful midship section in proportion to her ends. That was the feeling I had while sailing in the channels of the Grenadines. I was still travelling eastward as well as northward, and I knew that it would only be by the most careful windward work that I should be able to fetch the Pitons, thirty-one miles away. The wind on this day was the same trade that I had met with lower down, but the seas were longer than those of the Grenadines, and, if not so choppy, were more vicious when they broke; there would be less current to carry me to leeward.

I had scarcely got her under way and was still under the lee of the land when the first sea came, like the hoary hand of Neptune himself and we turned to meet it. Aft I slid, she lifted her bow—just enough—and the sea broke under us—and we dropped down its steep back, with lighter hearts.

My mainstay was the jelly coconut or water-nut as they called it. This is the coconut that has not yet reached the stage where the meat is the hard, white substance which we meet in the kitchen pantry in the shredded form, but is still in the baby stage when the meat is soft and jelly-like. In this stage the milk is not so rich as later on, but is a sort of sweet coco-tasting water. I never wanted for a supply of coconuts.

When my supply of pilot bread ran out I carried soda crackers and sometimes the unleavened bread of the natives. Raw pea-meal sausage helped out at times and there was, of course, the chocolate of which I have spoken before. I also carried other tropical fruits besides coconuts, mangoes, bananas, pineapples, but I never ate more than one sort on a run. The coconut was my mainstay, however, and that with a little bread and a piece of chocolate would make an excellent stop-gap till I could reach shore and cook a substantial evening meal.

Sailing as I did—seated only a few inches above the water—I had an excellent opportunity to observe the flying fish which rose almost continually from under the bow of the canoe. Although they were smaller than those I have seen in the channels off the California coast—they were seldom more than about nine inches long—their flight did not seem to be appreciably shorter. Their speed in the water immediately before they emerge must be terrific for they come out as though shot from a submarine catapult; their gossamer wings, vibrating from the translated motion of the powerful tail, make the deception of flight most real.

It was dark and it was raining when I reached Martinique and Fort de France. My clothes were already wet and I sloshed along the narrow sidewalks like a dripping Newfoundland dog. Fort de France was as new and strange to me as St. George's had been and far more interesting. An impending week of rainy weather decided for me and I made up my mind to spend that week here. Until I was ready to put to sea again and sail for Dominica I could not take my outfit away from the customs office. Camping along shore, then, was out of the question. There was no alternative for me

The Carib dug-out canoe is made from a large log 18 feet or more long and about 18 inches high at the ends. The sides increase in thickness toward the bottom, usually about 1 inch thick at the gunwales. The canoe is first roughly shaped and then burned out and widened by spreading

than to become for the time a part of the life of the town.

My walks about town were for the most part sallies from the hotel during intermissions between showers—for it rained almost continually for the entire week. These sallies I alternated with periods of writing in the quiet little cabaret where an occasional acquaintance would sit down for a chat, my French taking courage from day to day like an incipient moustache. I usually occupied a marble-topped table under an open window by which bobbed the heads of passers-by.

In the evening, after dinner, I would walk out across the savanna to the still waters of the carenage—I was living in such a civilised state that canoe cruise, whalers, and Caribs seemed to have slipped back into the remote haze of memory—where an aged steamer, clipper-stemmed and with a ship's counter, lay rusting at her moorings, her square ports and rail with ginger-bread white-painted life-net, a delight to one who revels in a past that is just near enough to be intimate. From the carenage my walk would continue along the quay, past the barracks of the naval station across the street from which a tribe of cosy little cabarets blinked cheerfully into the night through open doors and windows. But this life in Fort de France was becoming too demoralising and I should soon be too lazy to cook another meal. The rainy week was over and I bade adieu to the statue of Josephine, extracted my outfit from the jealous care of the duanes, and sailed for the ruined city of St. Pierre, and the thread of my cruise was once more taken up and I was back into the canoe, enjoying the lee coast panorama with my folded chart in my lap for a guide book. It was early in the afternoon when I made out the little beacon on Sainte Marthe Point beyond which lay the roadstead of St. Pierre.

Reviewing these things in my mind, I ran alongside the new jetty built since the eruption and hauled up the *Yakaboo* under the roofing that covers the shore end. There were about ten people there, nearly the entire population of what was once a city of forty thousand.

Looking up at Pelee from the streets of St. Pierre, one felt that surely no destruction from a crater so far off could reach the city before safety might be sought; but as I sat upon the very slope of the crater I could easily imagine a burst of flaming gas that could roll down that mountain side and engulf the city below it in a minute or two of time. That night I read myself to sleep in the cockpit of the *Yakaboo* with my candle lamp hung over my head from the stumpy mizzen mast. I awoke in the morning to find that I had carelessly slipped into the second day of a windy quarter. There was no doubt about it; the trade was blowing strong at six o'clock. I was impatient to be off shore before the surf would be running too high even for the thirty-foot dugout.

The lee coast of Dominica stretching away to the north was in brilliant light. You have probably gathered by this time that the Lesser Antilles are decidedly unsuited for camping and cruising as we like to do it in the North Woods. In a few isolated places on the windward coasts one might live in a tent and be healthy and happy, such as my camp with the Caribs; but to cruise and camp, that is travel and then rest for a day on the beach—this is impossible. In this respect my cruise was a distinct failure.

I tried to sail in those shifting puffs but it was a waste of time. The lee coast of Guadeloupe is noted for its calms and on this May day when the trade to windward must have been very light, there was at times not a breath of air. I settled down for a long row. The heat did not become intense till eleven when what breeze there had been ceased and on all the visible Caribbean I could detect no darkened ruffle of its surface. My long pull at last came to an end when at six o'clock I rowed into a beautiful little bay and beached the canoe at the very doorsteps of the village of Deshaies. The bay was a deep pocket walled by green hills on three sides and open to seaward where the sun with a guilty red face was hurrying to get below the horizon so that he could sneak around again as fast as possible in order to have some more fun scorching inoffensive canoe people.

The bay, a snug enough harbor for small coasters, struck into the land like a tongue of the ocean mottled with shoals and coral reefs while the green of the hills was barred from the blue water by a narrow strip of white sand. The charm of the place was strong and I forgot the hot toil of the day while I stood on the beach by the *Yakaboo* and looked about me. Scarcely two canoe lengths from the water's edge stood the outposts of the village, those meaner houses of the fishermen, the beach combers, and the keepers of small rum shops.

There were iron grills and balconies and bits of paved roadway and courtyard and there were faces among those easy-going people that took my mind back to Mayero and the descendants of the Saint-Hilaire family. But the banded Anopheles were coming from the Deshaies River bed in millions and I returned to the beach where I found the acting mayor waiting for me. He had borrowed a sheet of my note paper which he now returned, a neatly written document to the effect that I had landed that evening in Deshaies—on my way to Montserrat. Then he showed me a great iron key and led me across the street to that "hotel" which is less sought after than needed. It was the town lock-up!

We left the beach in a dead calm. The sun was nearly an hour above an horizon of trade clouds and even as I rowed I could see the wind that was coming begin to darken the water in patches to the eastward. In half an hour the wind caught up to us and soon after I set sail. We were scarcely free of Guadeloupe when the canoe began to move with the first light breaths, over a long easy swell. Montserrat was a hazy blur on the horizon, and I should have to look sharp lest I miss it. As far as I could see to windward, north and south, squalls were now chasing down as though there were two conditions of wind; one a stiff breeze and the other a series of squalls moving independent of and through the first. The canoe was travelling so fast—we were making a good six knots—that I could easily dodge most of the squalls by tacking down the wind like a square rigger. Once I was actually running off on the port tack WSW while the course from Deshaies was NW ¼ W. There was no harm in being thrown off my course to the south and west for it ultimately served to place Montserrat all the more to windward.

There was not much in Montserrat for me. Thirty miles to the northwest lay Nevis and St. Kitts—stepping stones to St. Eustatius and Saba. A nearer invitation than these was Redonda, a rounded rock like Diamond off Martinique which rose almost sheer to a height of a thousand feet out of deep water with no contiguous shoals, a detached peak like those of the Grenadines—a lone blot with Montserrat the nearest land, eight miles away. On the 10th of November in 1493 Columbus coasted along Guadeloupe and discovered Monserratte, which he named

The log-catamaran was in all probability the prototype of the modern paddling craft, long used by the aborigines before the idea of burning out a log to make a dug-out canoe ever occurred to the south-sea islanders. In the picture a Black Carib boy is shown paddling his rude craft in Owia Bay

after the mountain in Spain where Ignatius Loyola conceived the project of founding the Society of Jesus. "Next," says Barbot, "he found a very round island, every way perpendicular so that there seemed to be no getting up into it without ladders, and therefore he called it Santa Maria la Redonda." The Indiana name was Ocamaniro.

There was just enough breeze to allow me to lean with my elbow on the weather deck. Sharks were as far removed from my thoughts as the discussion of the Immaculate Conception—I believe I was actually deciding that my first venture upon escaping the clutches of the chosen few who guard our national customs would be a large dish of ice cream which I would eat so rapidly that it would chill the top of my head and drive from it forever the memory of the calms of Dominica and Guadeloupe. My mind was fondling this chilly thought when suddenly the flash of a yard of rainbow under my bows announced the arrival of a Dauphin or, as they called them in the days of Labat, a Cock Dorade. By shape of its square-nosed head I could see that it was the male of the species. I have often wondered whether this was not the dolphin of the dying colors—it surpasses even the bonito in the marvellous changes in its hues when expiring.

These fish are common near the northern coast of Martinique. Pere Labat says that in order to catch the dorade without bait one must troll with a fly made of two pigeon feathers on each side of a hook and smeared with dog grease. I watched him leasurely cruise for a while back and forth under the bow when suddenly there was a mighty swirl under the nose of the canoe and I saw the greyish white torpedo form of a huge shark heave after him. The dauphin was not to be caught unawares—the Lord knows how long Mr. Shark had been watching him from under the shadow of the *Yakaboo*—and the pair tore away through the sea, the shark a lagging second. After a hopeless dash the shark gave up the chase.

I left Nevis on a hot calm Sunday morning for Basse Terre, the port of St. Kitts. The row was twelve miles and the calm hotter than that of Guadeloupe. There was no perceptible breeze, just a slow movement of air from the northeast—not enough to be felt—a sluggish current that stranded a ponderous cloud on the peak of Monkey Hill, its head leaning far out over the Caribbean where I rowed into its shadow. When I was still half a mile from the town I stood up in the cockpit and took off my clothes. After I was thoroughly cooled I enjoyed a shower bath by the simple expedient of holding one of my water cans over my head and letting the water pour down over my body. Then I put on my "extra" clothes.

"Don't waste your time here," he said in the swinging dialect of the northern islands, "you will be among your own at Statia and Saba." I had met this Saba man on the jetty, Captain "Ben" Hassel of a tidy little schooner, ex-Gloucester, and he told me of the Dutch islands and their people. He was my first breath of Saba and my nostrils smelt something new. From her earliest days Statia belonged to the Dutch, who, before the British, were masters of the sea and for long years were supreme in maritime commerce. They have always been sailors as you shall see. The policy of the Dutch has always been for free trade and by this they became rich in the West Indies. Oranjetown, on the lee side of the island, half on the cliff, half on the beach, Upper and Lower Town as it was called, with its open roadstead where at times two hundred trading vessels have lain at anchor, possessed no advantages except those of free trade. Statia became a port of call. When our thirteen colonies broke away from the mother country the old Dutch Republic sympathized with the young one and the Dutch made money in the commerce that followed. When the struggle for independence broke out Statia was one channel through which the colonies procured munitions of war. Every nation has its blackguards and it seems that English traders at Statia actually supplied to the American Colonists powder and cannon balls which were made in England and sent to them in Statia.

As in Fort de France, I became a part of the life of Statia; here was a place where I could live for a time. In six hours I had boon companions. There was the Doctor—he would always come first and there was that inimitable Dutchman, Van Musschenbroek of Hendrick Swaardecroonstrasse, the Hague, who had an income and was living in a large house in the town which rented at $8.00 the month and was doing—God knows what. His English was infinitely worse than my German and it was through this common medium that we conversed—Dutch was utterly beyond my ken.

The Bay was only habitable during the early morning hours, before the sun got well over the cliff above. The rest of the day I spent on the plateau where the sun's heat was tempered by the trade which blew half a gale through the valley between the humps, a fresh sea wind. The active men of Statia go to sea; there is little agriculture besides the few acres of cotton and sisal that cry for the labor of picking and cutting for here the negro is unutterably lazy.

I became attached to Statia as I had become attached to Point Espagnol and Fort de France, but I found that little by little my eyes sought the sea more and more. The channel was calling again and peaked Saba became an aggravating invitation. With all the fascination of the old fort and the batteries, the stories of the privateers and the brisk companionship of the Doctor, the call was stronger than the present love, and so one morning I took to the shimmering channel and left the island of England's wrath for her sister where the Dutch rule the English.

To land at Saba in a small boat you must choose the right kind of weather. If there is no wind you cannot sail, if there is too much wind you cannot land, for the seas swinging around the island will raise a surf on the rocky beaches that will make a quick end of your boat. Saba one might call the Pico of the West Indies; not as high by half, but the comparison may stand for all that. From a diameter of two miles she rises to a height of nearly three thousand feet, her summit lost the loftiness of this old ocean volcano.

Here was a town walled in by Nature. The cleft into which the path was built ended in a small ravine that broke into the level plain of the Bottom and it was across this ravine that Freddie Simmons pointed out the ultimate anchorage of the *Yakaboo* and the asylum of her skipper. Our procession started again—we stopped once or twice to meet a Simmons or a Hassel—to make a starboard tack along the western side of the ravine, a short tack to port, and we put the canoe down on the after deck—I should say the back porch—of a cool airy house where we were to keep in the shade for a matter of ten days. Here then was the end of my cruise in the Lesser Antilles. I had swung through the arc from Grenada to Saba and in the doing of it had sailed some six hundred miles. My destination was the Virgins and their nearest island lay a hundred and ten miles away, and I was finally persuaded to take the trip in Capt. Ben's schooner.

We awoke with the Virgins dead ahead. We were approaching them as Columbus had—from the eastward. His course must have been more westerly than ours, but had he seen them first in the morning light as I did the effect must have been very nearly the same—a line of innumerable islets that seemed to bar our way. Herrera says, "Holding on their course, they saw many islands close together, that they seemed not to be numbered, the largest of which he called St. Ursula (Tortola) and the rest the Eleven Thousand Virgins, and then came up with another great one called Borriquen (the name the Indians gave it), but he gave it the name of St. John the Baptist, it is now called St. Juan de Puerto Rico." The largest island to windward he named Virgin Gorda—the Great Virgin.

It was Thursday, June 22nd, the Coronation Day of George Fifth and Queen Mary when we dropped anchor in the pretty harbor of Road Town in Tortola. How ancient will it all sound should someone read this line a hundred years from now! I put on respectable dress, for I had with me my trunk which had followed by intermittent voyages in sloops, schooners and coasting steamers, and from its hold I pulled out my shore clothes like a robin pulling worms of a dewy morning. Shaved and arrayed, I was taken to meet the Commissioner, Leslie Jarvis, who, like Whitfield Smith deserves better than he has received.

It was from Gorda Sound that I began my little jaunt about the Virgins. I had been

(Continued on page 76)

A Short Splice, a Long Splice and an Eye Splice

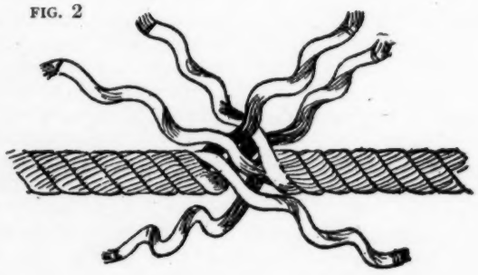
There Are Two Forms of Splices Used for Joining Two Ropes Together, a Short Splice and a Long Splice

SHORT SPLICE—WHERE A ROPE DOES NOT NEED TO RUN THROUGH A BLOCK, THIS IS A QUICK SPLICE. IT IS MORE TROUBLESOME THAN THE EYE SPLICE THOUGH THE PRINCIPLE IS IDENTICAL

FIG. 1

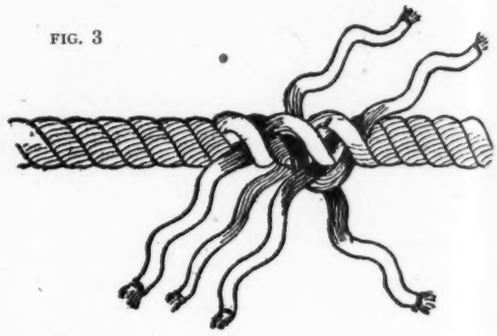
THE TWO ENDS, UNLAID, SHOULD BE BROUGHT TOGETHER CAREFULLY WITH THE STRANDS OPPOSITE AND BETWEEN AS IN FIG. 1 AND FIG. 2. IT IS BEST TO SEIZE, *i. e.*, WRAP THEM TEMPORARILY, IN THIS POSITION

FIG. 2



SPLICING CANNOT BE SUCCESSFULLY DESCRIBED, THE EXACTNESS BECOMES CONFUSING IN ITS LENGTH. BUT THE PROCESS IS SIMPLE WITH A ROPE IN ONE'S HANDS AND THE DIAGRAM BEFORE THE EYES

FIG. 3



THE FREE STRANDS ARE THEN INTERWOVEN WITH THE LAID UP ROPE, OVER AND UNDER. (FIG. 3) AND THE RESULT WILL BE AS FIG. 4

FIG. 4

IF A SUFFICIENT SPLICE IS MADE THIS MAY BE TAPERED BY CUTTING OFF FIBERS, BUT THIS IS NOT NECESSARY AS IT IS A PATCH JOB IN ITSELF

THE LONG SPLICE—IS USED WHEN THE ROPE IS TO RUN THROUGH A BLOCK OR WHEN THE DIAMETER OF THE ROPE MUST NOT BE ENLARGED. UNLAY THE STRANDS OF EACH ROPE FOR A CONVENIENT LENGTH AND BRING TOGETHER

FIG. 5 AND 6. UNLAY TO ANY DESIRED LENGTH STRAND D OF ONE ROPE, LAYING IN ITS PLACE THE NEAREST STRAND A OF THE OTHER ROPE

FIG. 5

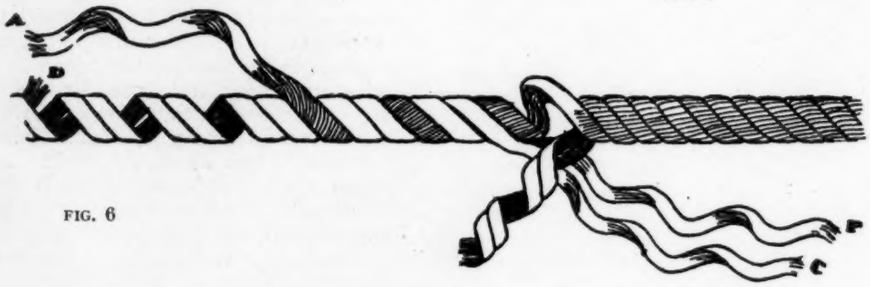


FIG. 6

REPEAT THE OPERATION IN THE OPPOSITE DIRECTION WITH THE OTHER TWO STRANDS, C AND F

THE ENDS OF THE STRANDS SHOULD NOT BE TRIMMED OFF CLOSE UNTIL THE ROPE HAS BEEN THOROUGHLY STRETCHED BY WORK.
THE ENDS MAY BE FASTENED BY TYING, RUNNING BETWEEN STRANDS, WHIPPING WITH A FEW TURNS, OR SEWING

FIG. 7

FIG. 8

THE LONG SPLICE IS USED WHERE THE DIAMETER OF A ROPE MUST NOT BE INCREASED AND SO THAT IT MAY STILL PASS THROUGH A BLOCK. THE LONG SPLICE TAKES A GOOD DEAL OF ROPE.
A SPLICE WEAKENS A ROPE ABOUT ONE-EIGHTH

FIG. 9

EYE SPLICE—IN ORDER TO FORM A NEAT EYE IN THE END OF A ROPE EITHER EMPTY OR AROUND A THIMBLE—A THIMBLE BEING A METAL RING OR LOOP TO PREVENT CHAFING THE OUTSIDE BEING DISHED TO FIT THE ROUND OF THE ROPE—THE STRANDS ARE UNLAID FOR A DISTANCE EQUAL TO THREE TIMES THE CIRCUMFERENCE OF THE ROPE AND LAID DOWN ON THE ROPE AFTER HAVING SHAPED OR FITTED THE EYE TO THE REQUIRED SIZE

THE STRANDS OF THE ROPE ARE NOW PRIED OPEN AND THE UNLAID STRANDS PASSED THROUGH AS SHOWN IN THE DIAGRAMS

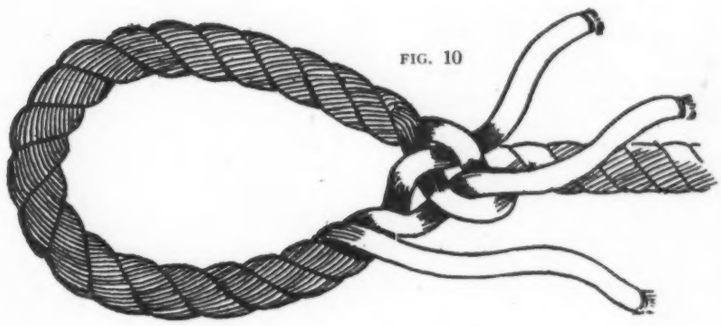


FIG. 10

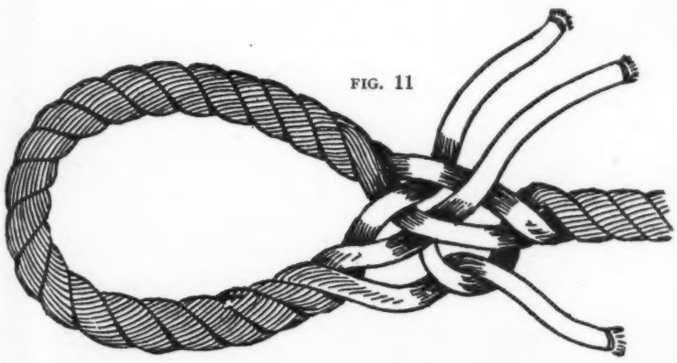


FIG. 11

THIS WEAVING SHOULD BE CONTINUED OVER AND UNDER AS SHOWN UNTIL THE LENGTH OF STRANDS (THREE TIMES THE CIRCUMFERENCE OF THE ROPE) ARE USED UP

TO TAPER THE SPLICE THE UNLAID STRANDS SHOULD HAVE A PORTION OF THE FIBERS CUT OUT AFTER THE FIRST OR SECOND WEAVE HAS BEEN MADE. THE WHOLE MAY THEN BE WHIPPED IF DESIRED. A MARLINSPIKE OR TAPERED ROUND STICK SHOULD BE USED TO PRY OPEN THE STRANDS

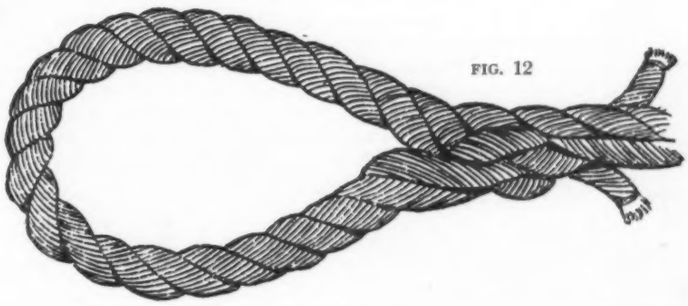
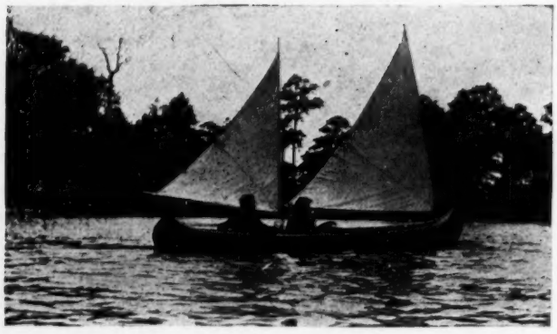


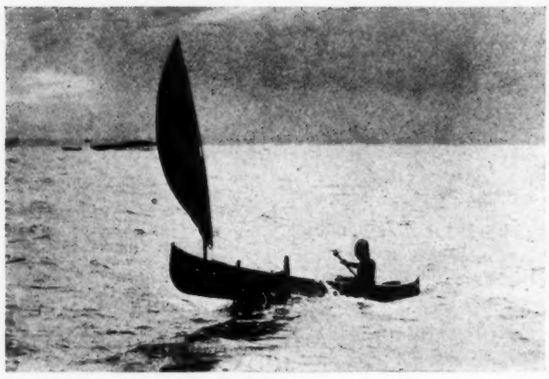
FIG. 12

SKIRTING PINE CLUSTERED FOOT HILLS THAT WADE WHERE THE SALT SEA WASHES THE COASTS OF NEW ENGLAND; THROUGH THE CANALS THAT JOIN THE LAND LOCKED EASTERN SEABOARD BAYS; THROUGH THE LAKES OF MINNESOTA; THE ISLANDS OF GEORGIAN BAY, THE REACHES OF THE MISSISSIPPI, OR LAZILY DRIFTING ON THE BAYOUS OF LOUISIANA—IN FACT ANYWHERE AND EVERYWHERE WHERE WATER LIES, DEEP OR SHALLOW, THE CANOE IS RIGHT AT HOME.

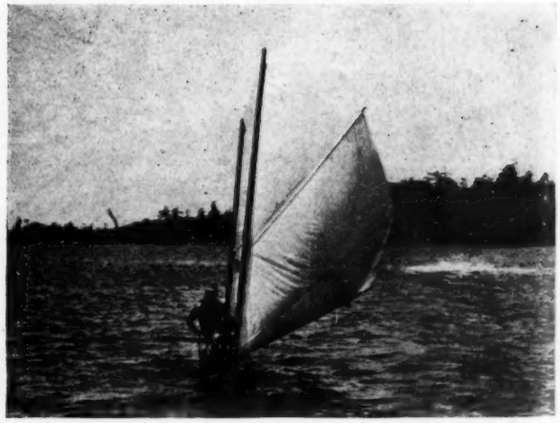


A 17-FOOT CANOE OFFERS A COMPACT AND INEXPENSIVE CONVEYANCE EQUAL TO CARRYING TWO ON A TRIP TO CANADA, THE MIDDLE WEST, OR FLORIDA. UNDER SAIL, WHEN A SAILING BREEZE BLOWS, OR WITH PADDLES WHEN IT'S STILL, IT IS QUITE POSSIBLE TO TRAVEL FROM 25 TO 30 MILES A DAY. A CANOE CRUISE SHOULD BE TAKEN LEISURELY ALLOWING AMPLE TIME TO MAKE CAMP EACH NIGHT OR TO REMAIN OVER A DAY OR TWO IF THE SITE IS A GOOD ONE AND THE COUNTRY ABOUT INTERESTING.

AN EXPERIENCED CANOEIST HAS LITTLE FEAR OF WIDE WATER OR ROUGH FOR THESE BOATS IF HANDLED SKILLFULLY ARE WELL ABLE TO RIDE OUT THE ROUGHEST WATER. CANOEISTS HAVE MADE SOME WONDERFULLY LONG VOYAGES SUCH FOR INSTANCE AS SKIRTING THE BRITISH ISLES, SAILING THE GREAT LAKES FROM ONTARIO TO SUPERIOR, CRUISING AMONG THE ISLANDS OF THE CARIBBEAN SEA AND FROM THE LAKES TO NOVA SCOTIA THROUGH THE ST. LAWRENCE.



THE CANOE BUILT FOR FAST SAILING IS AMPLY SPARRED AND CANVASSED, CARRIES A DEEP CENTER BOARD AND IS EQUIPPED WITH AN ATHWART SHIP SLIDING SEAT CALLED A HIKING BOARD. IT IS QUITE NECESSARY TO BE AN ACROBAT AS WELL AS A SAILOR WHEN HANDLING CRAFT LIKE THIS FOR EVERY WIND PUFF REQUIRES ADDED RIGHTING WEIGHT AND AS THE ONLY WEIGHT AVAILABLE IS THE CREW IT IS HIS PARTICULAR DUTY TO SLIDE TO WINDWARD AND BACK AGAIN IN TIME TO EACH PUFF AND LULL OF THE BREEZE. YOU WHO HAVE SAILED A BOAT KNOW SOMEWHAT OF THE AGILITY REQUIRED TO PREVENT A CAPSIZE.



Navigation for Amateur Skippers

A Practical and Informative Article on How to Plot Out the Boat's Course, Determine Her Position While at Sea, and Handle the Craft With the Safety of the Professional

By LIEUT. COM. F. W. STERLING

PART IV

TRAVERSE SAILING. So far we have considered the case where only one course and one distance is involved. If the vessel sails several different courses and distances, these can all be reduced to one *equivalent* course and distance by the method of *Traverse sailing*. This is done by finding the difference of latitude to the North or South and the departure to the East or West for each course and distance and then taking the algebraic sum of these differences of latitude and departure to find the equivalent course and distance.

Suppose in Fig. 18 that the vessel has sailed the distance AB on the course OAB and then sailed the distance BC on the course DBC. Its final position, by diagram, is the same as though it had sailed the distance AC on the course OAC.

Considering the first course and distance, HA equals the corresponding difference of latitude and HB the corresponding departure; considering the second course and distance DB equals the corresponding difference of latitude and DC the corresponding departure. Add the differences of latitude.

$$HA + DB = AO.$$

and add the departures

$$HB + DC = OC.$$

but AO and OC are the difference of latitude and departure respectively for the course OAC and distance AC.

To sum up: Starting with an initial position, A, and given several courses and corresponding distances, the final position C is arrived at by adding the several differences of latitude and several departures and with these two sums proceeding as in plane sailing.

A tabular form is used for the work as follows:

Course	Dist	Lat		Dept	
		N	S	E	W
SSW	12		11.1		4.6
SW	40		28.3		28.3
ESE	5		1.9	4.6	
E by N	60	11.7		58.8	
SE by S	12		10.0	6.7	
		11.7	51.3	70.1	32.9
			11.7	32.9	
SE 1/4S	53.5		39.6	37.2	

Example. A vessel sails SSW, 12 miles; SW, 40 miles; ESE, 5 miles; E by N, 60 miles; SE by S, 12 miles. Find the course and distance made good.

This is solved in a tabular form as follows: In column 1 place the courses, in column 2 the distances, in columns 3 and 4 the Lats, according as they are North or South, and in columns 5 and 6 the Deps, according as they are East or West. Next take the difference between the sums of columns 3 and 4, the difference between the sums of columns 5 and 6, in each case retaining the names of the larger quantity. With these differences as the *equivalent* Lats and Deps enter table 1 and get the *equivalent* Course and Distance.

PARALLEL SAILING. Thus far the spherical form of the earth has been ignored. It has only been considered as a plane surface, and *Difference of Longitude* has not been taken into account. Problems involving Differences in Longitude (abbreviated DLo) are solved by *Spherical Sailing*, of which *Parallel Sailing* is the simplest form. When a vessel sails upon an East or West course a certain distance, this distance is the departure. Converting this departure into degrees and minutes of longitude, or vice versa, is done by parallel sailing.

Suppose in Figure 19, T and T′ are two places in the same latitude; P, the adjacent pole; TT′ the arc of the parallel of latitude between the two places (is the departure); MM′, the corresponding arc of the equator intercepted between the meridians passing through the two places (is the difference of longitude); CMM′ is the plane of the equator; CP is the earth's axis; TOT′ is a plane through the parallel of latitude TT′. Now by construction.

$$TT' = Dep \qquad MM' = DLo$$

It can be shown trigonometrically that

$$DLo = Dep \sec L$$

This formula expresses the relation between departure in miles and difference of longitude in minutes. Problems in interconversion of Dep and DLo may be worked by the above formula. A much simpler method is the use of Traverse Tables. Since the Traverse Tables are based on the formula $DL = Dist \cos C$, we may substitute the departure for the column marked Lat, and the difference of longitude for that marked Dist, and the Latitude for the courses marked at the top and bottom of the page. The tables can then be used to these conversions.

Example. A vessel in Latitude 40° sails due East 167 miles. Required the difference of longitude.

Enter table 2 at course marked 40°. Under column marked Lat find 167. Pick out the number opposite 167 in the column marked Dist. This is the required difference of longitude in minutes, in this case, 218′ or 3°—38′E.

Example. A vessel in Latitude 20°—30′ sails due West a distance of 140 miles. Required the difference of longitude. In this case, since these tables are made only for even degrees, the result must be picked out for Lats. (courses in Table) 20° and 21°. In this case the differences of longitude are

for 20°.....149′ m The mean is 149.5′
for 21°.....150′
DLo=149.5′=2° 29.5′W

MIDDLE LATITUDE SAILING. When a vessel sails on other than an East or West course on a parallel of latitude, its latitude is constantly changing and the *Parallel Sailing* method of interconverting departure and difference of longitude must be modified. In Figure 20, T is the point of departure; T′ the point of destination; P, the earth's pole; TT′ the rhumb track; n′TT′, the course; Tn and n′T′, the respective parallels of latitude; MM′, the equator. By construction the difference of longitude is MM′. Now draw a parallel of latitude LL′ halfway between Tn and n′T′. The change in latitude between T and T′ is Tn′. Call the latitude of T "Lat Left," and the latitude of T′ "Lat arrived at," and the latitude of LL′, "Middle Lat."

Had the vessel made all of its change of longitude along the line Tn, then DLo = Dep sec (Lat Left). If it had all been made along the line n′T′ then DLo = Dep sec (Lat arrived at). Since the change was made along intermediate lines, neither formula is applicable. It can be shown mathematically that for an ordinary day's run of a vessel the formula DLo = Dep sec (Middle Lat) is correct. The method of conversion based upon this formula is called Middle Latitude Sailing.

Example. A vessel in Latitude 42° 30′N, Long. 58° 51′ W, sails SE by S, 300 miles. Required the latitude and longitude arrived at.

Entering Table 1, Bowditch, Course SE by S, Dist 300, we find Lat 249.4 S (4° 09.4′), Dep 166.7E. Proceeding

Lat left....	42° 30.0′N	Long left.....	58° 51′ W
DL.....	4° 09.4′S	Diff. Long (DLo).219.2′	3° 39.2′E
Lat arr at...	38° 20.6′N	Long. arr. at.....	55° 11.8′W.
	42° 30.0′		
	2)80° 50.6′		
Mid. Lat...	40° 25.3′		

First find the new latitude, then take the mean of the first and second latitudes for the *Middle Latitude* (40° 25.3′). Enter Table 2 with the middle latitude as a course.

With Mid. Lat. 40° as course, DLo (under Dist. column) corresponding to a Dept (under Lat column) of 166.7 is 217.6; with Mid. Lat 41° as course, DLo is 220.9. The mean value, corresponding to 40½° is 219.2.

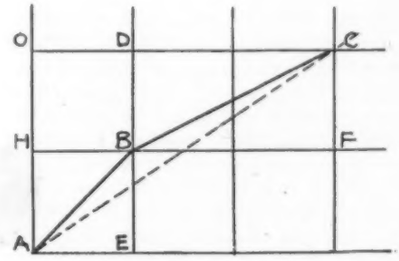


FIG. 18.—TRAVERSE SAILING

Having found the latitude arrived at, from the latitude left and the difference in latitude, the mean of the two is taken and the solution of the problem becomes the same as the solution for *Parallel Sailing*, substituting the *Middle Latitude* for the single Latitude used therein.

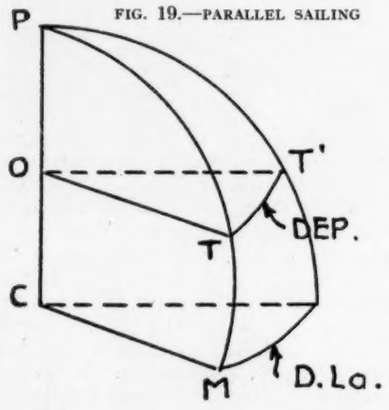


FIG. 19.—PARALLEL SAILING

DEAD RECKONING is the process of determining at any instant the vessel's position by applying the course and distance run from any previous well determined position. Having once determined the vessel's position, the position at any subsequent time may be found by applying the difference in latitude and difference in longitude obtained by the method of *traverse sailing* described in this chapter. Positions thus obtained are called Dead Reckoning (abbreviated D.R.) positions, or positions *by account*.

Positions by dead reckoning are not as accurate as those by observation because they may be influenced by incorrect estimate of distance run, bad steering, incorrect compass error, unknown currents, etc., and for this reason every opportunity that presents to fix the position by bearings should be grasped.

To obtain the vessel's position by dead reckoning it is necessary to have some previous well determined position. When a vessel leaves port, its position is always accurately determined by observations on the last well chartered navigational mark that is seen. This is called *taking the departure*.

TAKING THE DEPARTURE. This departure must not be confused with departure used in finding the difference of longitude. *Taking the departure* consists of obtaining a good "fix," that is an accurately plotted position, from which future positions by dead reckoning are computed. It is generally done by bearings on a well charted object. There are two methods of using this departure. By the first method the vessel's position is plotted on the chart, by any of the methods described in Chapter 3, and the latitude and longitude of this position, taken from the chart, are used as the departure for future reckoning. In the second method, the bearing and distance are found of the object used for departure. The latitude and longitude of the object are taken as the point of departure for future reckoning, and the course and distance *from* the object to the vessel (the reverse of its bearing) at this time are entered as the first course and distance in the dead reckoning columns. The course from the object to the vessel is the *reverse* of the bearing of the object from the vessel.

To make this clear, suppose bearings are taken on a light and plotted on the chart, and that the position thus obtained is Lat 41° 16′N, Long 70° 50°W. This would be the point of departure according to the first method and dead reckoning positions would be computed from this. If, however, a light whose position were Lat 41° 20′N, Long 70° 50′W, bore North true, Dist 4 miles, then the position of the light can be taken as the point of departure, and the course South (reverse of bearing) true, and the Dist 4, are entered in the dead reckoning columns ahead of the first course and distance run by the vessel. In either case the result is the same.

Current. The Set of a Current is the direction *toward* which it is moving.

The Drift of a Current is the speed per hour with which it moves.

When a vessel is sailing in a current, the set and drift of which can be determined with any accuracy, as in the Gulf Stream, allowance for the current, when figuring dead reckoning, should be made as follows:

Enter the *set* of the current in the column of courses. Multiply the *drift* of the current by the number of hours run, and enter this opposite the set in the column of distances. The effect of the current on a vessel is the same as though the vessel actually sailed the *set* and *drift*.

SUMMARY. To sum up the subject of dead reckoning, a problem is given herewith that illustrates departure by the second method, traverse sailing, compass error, and allowance for current.

Example. Took departure at 8 A. M. on Cape Charles Lightship (Lat 37° 05′N, Long 75° 43′W) bearing (p.s.c.—per standard compass) 271°, Dist 8 miles, ship's head East (p.s.c.), var.—5°, dev.—4° (this gives true bearing of lightship 262°). Thence sailed until 10 P. M. on courses as follows:

Course (p.s.c.)	110°,	var.	—5°,	dev.	—6°,	distance	6	miles
" "	84°,	"	—5°,	"	—4°,	"	8	"
" "	79°,	"	—5°,	"	—4°,	"	10	"
" "	67°,	"	—5°,	"	—3°,	"	15	"
" "	20°,	"	—6°,	"	+1°,	"	40	"
" "	286°,	"	—6°,	"	+3°,	"	48.5	"
" "	240°,	"	—7°,	"	+8°,	"	5	"

The known current is estimated at *set* 48 (true), *drift* .5 knot per hour. Find Lat and Long at 10 P. M. by dead reckoning.

Solution: The current for 14 hours at .5 knot per hour is 7 miles, total (See next page for table).

Lat left.....	37°—05′ N	Long left.....75°—43′ W	
DL 65.2′.....	1°—05.2′N	D Lo.....	9.8′E
Lat 10 P. M.....	38°—10.2′N	Long 10 P. M...75° — 33.2′W	

DAY'S RUN. It is customary to calculate the total run for the preceding 24 hours every day at noon. Having the vessel's positions at two succeeding noons the problem resolves itself into finding the course and distance made good between the two positions.

Example. The position of a vessel at noon of July 12, 1914, is Lat 35°—10′ N, Long 134°—01′W, on July 13, 1914, the vessel's position is Lat 36°—03′N, Long 131°—14′W. Find the course and distance made good.

Pos. July 13....36°—03′N .....131°—14′W
Pos. July 12....35°—10′N .....134°—01′W

Run..... 53′N ..D Lo 2°—47′E=167′E

Middle Lat —36° approximately, D Lo =167′. From Table 2, Dep =135.1. Entering Table 2 with Lat 53 (which is D L above), and Dep =135.1. we obtain

Course 68½°——Distance 146 miles, made good.

Course p. s. c	Var.	Dev.	Compass Error	True Course	Distance	N	S	E	W
(Bearing of Lightship)				82°	8	1.1		7.9	
110°	—5°	—6°	—11°	99°	6		0.9	5.9	
84°	—5°	—4°	—9°	75°	8	2.1		7.7	
79°	—5°	—4°	—9°	70°	10	3.4		9.4	
67°	—5°	—3°	—8°	59°	15	7.7		12.9	
20°	—6°	+1°	—5°	15°	40	38.6		10.4	
286°	—6°	+3°	—3°	283°	48.5	10.9			47.2
240°	—7°	+8°	+1°	241°	5		2.4		4.4
(Current)				48°	7	4.7	5.2		
						68.5	3.3	59.4	51.6
						3.3		51.6	
						65.2N =DL		7.8E =Dep	

GRAPHIC SOLUTION OF DEAD RECKONING. A much quicker solution of a vessel's run by dead reckoning can be made graphically on the chart. From the point of departure draw the true course on the chart. Measure from the point of departure the distance run on this course. From this second point draw the second course on the chart and lay off from this second point the distance run on the second course. By continuing this process the vessel's position by dead reckoning at any instant can be obtained. This affords an excellent check to the computations.

SOUNDINGS are taken for two general purposes: first, when in shallow water, to ascertain that there is sufficient depth of water for the immediate movement of the ship, and to check the depths as given on the chart; second, to verify dead reckoning positions when on soundings in a fog or when land is not in sight.

The best aids to navigation, when running in a fog, are the sounding machine and the

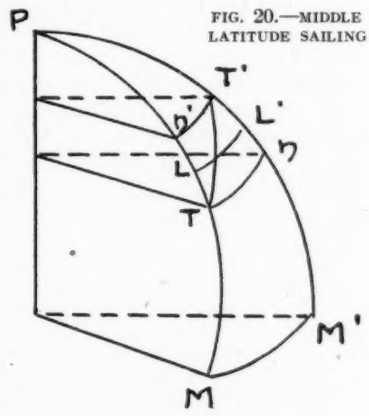


FIG. 20.—MIDDLE LATITUDE SAILING

hand lead, and the navigator should make every possible use of them. Even in clear weather the sounding machine, or deep sea lead in lieu thereof, may be of great aid to the navigator in verifying his position. This is especially true when making a land-

fall. The lead and line, and the deep sea lead and line were described in Part II.

THE SOUNDING MACHINE.[1] This machine possesses advantages over the deep sea lead, for which it is a substitute, in that soundings can be obtained at great depths and with accuracy and rapidity without stopping the ship. It consists of a stand on which is mounted a reel which holds the sounding wire. Crank handles are fitted to the reel for reeling in the wire after a sounding has been taken, and a suitable brake controls the reel when the wire is running out to take a sounding. The lead is secured to the outer end of the wire. Its base is hollow to receive tallow for arming. Attached to the sounding wire, just above the lead, is the depth registering instrument enclosed in a hollow cylindrical case. Various registering devices are in use, but all depend upon the increasing pressure of water at increasing depth.

The Lord Kelvin Machine employs, for its registering device, a slender glass tube, sealed at one end and open at the other. This is coated inside with a chemical preparation which changes color on contact with sea water. This tube is placed, closed end up, in the metal container. When taking a sounding, as the lead sinks, taking the registering device with it, the air contained in the glass tube is compressed with a force dependent upon the depth. Salt water enters the open end as the air is compressed, and this makes a clearly defined line of discoloration a distance from the open end dependent on the depth. A scale is provided upon which the depth can be measured by this mark of discoloration.

Ground glass tubes may be substituted for the chemically prepared ones. When a ground glass tube is wet, it shows clear over the wetted surface. Such tubes can be used an indefinite number of times, if thoroughly dried each time.

Mechanical depth recorders can be substituted for the glass tubes. In such a device water pressure acts upon a piston against the pressure of a graduated spring, and the depth is recorded on a scale by an index pointer that is moved by the piston.

When Making Land In a Fog the sounding machine, or deep sea lead, must be kept going at half hour intervals for some hours before it is expected that soundings can be obtained. Several soundings at irregular intervals are worse than useless as they give no definite information and may lead to disaster. In using the sounding machine, be careful not to invert the tube when withdrawing it from the tube case, as that would cause water to run toward the closed end of the tube, causing a discoloration and hence a false reading. The lead must be freshly armed at each cast. Having picked up the bottom, the navigator can proceed as described under "*Piloting by Soundings in a Fog.*"

[1]Whereas, a Sounding Machine will only be found on a large yacht navigated by a licensed Master, it is still considered of sufficient importance to merit a short description.

Keep a sharp lookout for any landmarks that may appear during a momentary lifting of the fog, and listen carefully for signals. If a fog signal is heard, the landmark where it is situated can be determined by reference to the Light List, which gives the characteristics of all fog signals (viz. the number and duration of the blasts). If approaching land and the soundings indicate a dangerous proximity to land, if no signals have been heard that will further aid navigation, the only safe course is to anchor or stand off shore. When running slowly in a fog (as the law requires) it must be borne in mind that the relative effect of current is increased. Sometimes, when approaching a bold bluff shore, a vessel may be warned of its proximity by having its own fog signals echoed back from the cliff. In some inland waters where cliffs are frequent, navigators depend upon this to a great extent.

PILOTING BY SOUNDINGS IN A FOG. Soundings taken in a fog serve a much more important function than merely to give the depth of water at any one position. The vessel's position can often be found by a *series* of soundings. In thick weather, when approaching or running close to land, or in

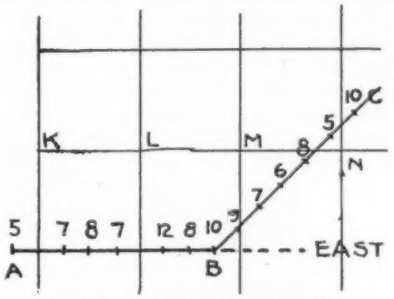


FIG. 21.—PILOTING BY SOUNDINGS

inland waters, soundings should be taken *continuously* and at *regular intervals*, and the character of bottom should be noted. By laying off the soundings on tracing paper along a line that represents the track of the ship and to a scale (distances between soundings) corresponding to the scale of the chart and then moving the tracing paper on the chart so that the courses plotted are parallel to corresponding directions on the chart until the observed soundings agree with the chart soundings, the vessel's position can generally be well determined. While some waters by the quick changes in soundings along the bottom adapt themselves more readily than others to this method, there are few places where the navigator cannot at least keep out of danger by these indications. When the navigator can no longer determine with some degree of accuracy that his course leads clear of danger, it is time to anchor until more favorable conditions present themselves.

To illustrate the above by a simple example: Suppose the vessel is making 12 knots *over the ground*, and that she has steered East for 30 minutes and then NE for 30 minutes. Suppose that soundings have been taken at five minute intervals as follows: 5, 7, 8, 7, 12, 8, 10 (when course was changed), 9, 7, 6, 8, 5, 10, fathoms. On tracing paper lay off, as in Figure 21, to the scale of the chart, AB=6 miles, BC=6 miles (30 minute runs at 12 knots), and ABC=135° (angle between courses). This represents the track of the vessel. Now divide AB and BC each into 6 equal parts. These are one mile intervals and the division points represent the positions at which the soundings were taken. Mark the soundings at the proper division points, and move the tracing paper over the chart, always keeping the line AB in the East and West line of the chart. At some portion of the chart it will be found that the depths on the tracing paper correspond to depths on the chart (if the soundings have been carefully taken) and the vessel's position is at the point of the last sounding.

Orienting the tracing paper is facilitated by drawing a few meridians, K. L. M. N. thereon. If there is much range to the tide the stage of the tide must be noted when soundings are taken and allowance must be made for the height of tide. The soundings on the chart are for mean low water.

EFFECT OF WIND AND BAROMETER ON SOUNDINGS. When navigating waters where the depth exceeds the vessel's draft by only a small amount, it must be borne in mind that a strong wind or unusually high barometer may cause the water at low tide to fall below the depth indicated on the chart.

PILOTING AMONG CORAL REEFS. When piloting among coral reefs or banks, a time should be chosen when the sun is astern. Conning should be done from an elevated position forward. When the observer is high up, the line of demarcation between a reef or shoal and deep water is very clearly seen.

When passing *between* shoals or dangers where there are no well chartead navigational marks a mid-channel course should be steered. Too much emphasis cannot be laid upon this point. Do not save seconds by passing close to a danger when a safe course offers. Steering a mid-channel course by eye is a simple matter, as the eye can make a close estimate in a case of this kind.

To an observer tides present themselves in two different manners, by alternate elevation and depression of the water level, and by alternate inflows and outflows of streams. Properly speaking *tides* should refer to the vertical motion and *tidal currents* to the horizontal flows. However, popular usage ascribes both these meanings to *tides*.

When the water has reached a maximum level it is called *high tide*, or *high water*. When it has reached a minimum level it is called *low tide*, or *low water*. The interval at high and low water, when there is no perceptible movement, is called the stand.

Between low and high water, when the tide is setting from the sea toward the land, the horizontal movement is called *flood tide*. When the horizontal movement sets from the land toward the sea, between high and

low water, it is called *ebb tide*. The interval of change between flood and ebb, when there is no perceptible horizontal movement, is called the *slack*.

The Cause of the Tides is the difference in the attraction of the moon (and to a less degree of the sun) upon the various unit masses of water and the attraction of the moon on the earth itself. This difference of attraction combined with the relative periodic movements of the moon and earth produce the periodic ocean disturbances known as tidal phenomena.

Establishment. The moon being the dominant factor in tide production, it is apparent that the phenomena should bear some relation to the lunar month (28 days). High and low water occur, on the average of these 28 days, at about the same intervals *after the transit* of the moon over the meridian. These nearly constant intervals, expressed in hours and minutes, are known respectively as the *high water lunitidal interval* and the *low water lunitidal interval.* The interval between the moon's meridian passage at any place and the time of the next succeeding high water, as observed on the days when the moon is at full and change (new), is called the *establishment;* it is also spoken of as the *time of high water on full and change days* (abbreviated "H. W. F. & C."), for since the moon's meridian passage on these days occurs at midnight and noon (of the lunar day), the establishment is approximately the time of high water. If to the time of high water we add or subtract 6 hours 31. minutes (¼ of a lunar day) the result will be the time of low water.

Range, Spring and Neap Tides. The *range* of a tide is the difference in height between high and low water. At new and full moon the sun and moon produce high tides at the same times. The effect of the sun augments that of the moon and the resultant high tides are higher than the average. Similarly the low tides are lower than the average, and the range of tides is greater. Tides at this season are called *spring tides.* At the time of first and third quarters of the moon the high tides due to the moon occur simultaneously with the low tides due to the sun. The resultant high and low tides are less than the average and the range is at its minimum. Tides occurring at this season are called *neap tides.* Tidal currents (*flood* and *ebb*) are strongest at spring tides and weakest at neap tides.

Tidal Currents. It must be remembered that the periods of *flood* and *ebb* in any locality are not necessarily coincident with the periods of rise and fall of the tide. The inward set of the surface current does not always cease when the water has attained its maximum height. Local conditions may be such that flood may continue after high water has been reached, or vica versa.

This may be more apparent by comparing two tidal basins, one having a large open entrance and the other having a narrow restricted opening. In the first case the process of filling and emptying the basin keeps pace with the outside sea level and ebb and fall, flood and rise, occur at practically the same time. In the second case the restricted entrance retards filling the basin so that the height of water without may reach a maximum long before the basin fills. In this case *flood continues*, possibly hours, *after high water occurs*, and in a like manner the restriction will cause ebb to continue long after low water has occurred outside.

Times of High and Low Water. The simplest and quickest method of obtaining the times of high and low water and other tidal data is by use of a Tide Table. One is published by the U. S. Coast and Geodetic Survey annually, and gives the times of high and low water at many seaports. From these others may be deduced. Much other tidal data is given in this publication. The daily papers of many marine ports give the times of the tides for several days ahead of the date of issue.

When no tidal table or data is obtainable the time of high water can be computed by use of the Nautical Almanac as follows: To the time of the moon's meridian passage add the lunitidal interval (H. W. F. & C.), obtained from the chart or from Bowditch's Useful Tables.

The time of the moon's meridian passage is obtained as follows: From the Nautical Almanac pick out the Greenwich Mean Time of the Upper Transit of the Moon at Greenwich for the local date (Page IV). Also pick out the daily variation on the same line. With this *variation* and with the *Longitude* as arguments enter table 11, Bowditch, and obtain the correction to be applied to the G. M. T. of Greenwich Transit. The result is the Local Mean Time of the moon's meridian passage. Now add to this the time of H. W. F. & C. and the result is the Local Mean Time of high water. This can be converted to Standard time by applying the difference in time between the longitude of the place and the Standard Meridian.

Appendix IV, Bowditch, contains the mean lunitidal interval of high and low water for many places. The charts give the establishments of many ports with sufficient accuracy for this work.

General. To sum up, when approaching land or harbor, the navigator must know the draft of the vessel. He must make himself familiar with every detail of the charts he will use, and must form a mental picture of the land and aids to navigation that he will sight. Allowance must be made for the effect of the position of the sun or moon on the appearance of objects sighted. He must be familiar with the characteristics of all lights, buoys, fog signals, and other aids to navigation that he will use, and with the state of the tide and currents in channels he will navigate. He should select beforehand the objects that he will use for bearings. He should carefully check all buoys to prevent confusion. Ranges should be selected and lines drawn to indicate safe courses and danger bearings where possible. The track of a vessel entering port should be laid down on a chart before entering, and this should be carefully inspected to see that it leads clear of all possible danger.

The vessel's position must be frequently plotted on the chart and should never be in doubt for an instant. Soundings should always be taken when on soundings, whether the weather be clear or cloudy. The navigator should familiarize himself with the Inland Rules of the Road before entering pilot waters.

Tonnage, What it Means

THE tonnage of a ship is the weight or carrying capacity expressed in tons.

In nautical parlance, four kinds of tonnage are usually spoken of. These are displacement tonnage, deadweight tonnage, gross tonnage, and net tonnage.

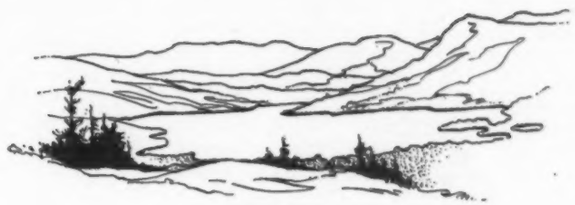
Displacement tonnage represents the amount of water displaced by a vessel. If she is floating in equilibrium in still water, the weight of water she displaces equals the weight of the vessel herself with everything on board. The displacement in cubic feet when floating in salt water divided by 35, and when floating in fresh water divided by 36, gives the total weight of a ship and her cargo in tons; for 35 cubic feet of salt water weighs 1 ton (2,240 pounds), and 36 cubic feet of fresh water the same amount. As a rule, the displacement tonnage is equal to the deadweight tonnage multiplied by 1.64.

Deadweight tonnage represents the carrying capacity of a ship and includes the tons of cargo and generally the coal. The deadweight tonnage equals about 64 per cent. of the displacement tonnage and can be obtained by substracting from the displacement tonnage the weight of the vessel when empty.

Gross tonnage is obtained by ascertaining the total internal capacity of the ship in cubic feet below the upper deck, and of all enclosed spaces or deckhouses above the deck and dividing the result by 100.

Net tonnage is obtained from the gross tonnage by subtracting from the measure (before dividing it by 100) the cubic contents of all spaces not devoted to the carrying of passengers or cargo, such as those containing the propelling machinery, boilers, officers' quarters, crew's quarters, etc. Though 100 cubic feet of space are allotted to the ton in computing tonnage, in ascertaining freight charges based upon the bulk of the cargo, forty cubic feet only are allowed. This is the space occupied by a ton of good, close stowed steaming coal, and is not far from that required for a ton of average cargo. Roughly speaking, the tons of cargo that can be carried by a freight steamer can be obtained by multiplying the net tonnage by 2.5.

The Log of an Inland Cruise in 1817



THOMAS DEAN was a very methodical business man, who left a chest of papers containing letters, contracts, accounts, legal documents, etc., all filed in perfect order. There are old letters from Quaker friends and relatives dating back to 1799. In this chest, now in Indianapolis, was found the journal of a journey made by him in 1817.

This journal is the simple record of a voyage made one hundred years ago, from central New York to central Indiana, all the way by water.

The purpose of the journey was to secure land in the West for the Brothertown Indians, then living in Oneida County, State of New York. Owing to the encroachments of the white population, and their desire to purchase Indian lands in New York, it was deemed desirable to move the Brothertown Indians to the West, where they would have more land, advantageous surroundings, and removed from injurious influence incident to the presence of the white population on the weakness of the Indian character.

The New York Indians were the remnants of seven tribes of New England Indians, who had been moved to Oneida County, New York, in 1788. A tract of land had been purchased from the Oneida Indians in 1774, but owing to the hostility of the Mohawk tribe during the Revolutionary War, it was considered unsafe for them to move until after the war had closed. The Brothertown Indians consisted of remnants of the following tribes: Mohegans, Farmingtons, Stoningtons, Pequods, Narragansetts, Montauks, and Nehantucks.

The boat crew, for the voyage to Indiana, consisted of chiefs and leading men of the Brothertown tribes, as follows: Paul Dick, Jacob Dick, Thomas Isaacs, Charles Isaacs, and Rudolphus Fowler. There were also two Indian women aboard, Sarah Dick and Betsy Isaacs, wives of chiefs. The only white person in the company was Thomas Dean, their attorney, agent, and captain.

There is no description of the boat, but at Vincennes, Indiana, "Dr. Lawrence S. Sheelee, who had been on the boat yesterday, took a brief account of our voyage with intention of publication." The boat drew twenty-one inches of water. Going down the Allegheny River they took on three passengers; it therefore carried eleven people with ease, besides the chests and other cargo. It was built by Thomas Dean at Deansboro, Oneida County, New York, and launched into the Oneida Creek.

VOYAGE FROM DEANSBORO, N. Y., TO NIAGARA RIVER

Oneida Creek, N. Y., May 31st, 1817, 6 o'clock A. M. Wind N. W., and cloudy, with some rain. All hands at work fitting for the voyage. At 15 minutes of 10 A. M. Paul Dick arrived and joined our company, and 20 minutes past 11 his father, Thomas Dick, came to see us; 30 minutes past 1 P. M. ran down Oneida Creek with Burlingame and several others on board. Ran out of the creek onto the lake and made sail, the wind blowing a gale. We made two or three tacks, but the lake was so rough that we did not gain more than one or two miles and it was thought best to run back into the creek and wait until the wind abated. Paul Dick and I went to Burlingame's, about three-quarters of a mile from the boat, and lodged; the rest of the company lodged in an old house or in the boat.

June 1st. At 3 A. M. P. Dick and I started to meet our company and all set about getting ready to start. It was clear and very frosty; some ice. We drank some chocolate, ate some bread, all aboard, and went down the creek to the lake and took leave of Thomas Dick. Set sail at 6 A. M.; the wind very light, and from the W. S. W., so that we had to row. At 12 o'clock, opposite Roderdam, we were rowing along at a good rate, not expecting any shoal; I was steering when I discovered rock, and we had but just time to stop our headway and put about. The water on the shoal was not more than a foot deep. I considered it fortunate that we had not a fair wind and going very fast or we might have injured our boat, for we had no idea of there being any such shoal water in or near the middle of the lake. At 2 P. M. we landed on Frenchman's Island and took dinner. It is a beautiful island, well timbered, containing thirty or forty acres. At 5 P. M. we got under way with head winds, but ran down the Oneida River to the head of Cognoy Rift and put up at Selos Billos.

June 2d. We breakfasted on eels and put our baggage on board. The boat drifted around on a root, and in getting on board she rocked on it and it punched a hole in her larboard bow, on the second strap from the garboard, about one and a half inches in diameter. We immediately discovered the leak and ran down the rift, intending to go to Three River Point, but she took in water so fast that we had to go on shore, unload all our things, draw the boat up and put in a graving piece. We repaired our boat, loaded her, and embarked about 11 o'clock, went down to Three River Point, stopped and made some inquiry about the river. We then passed down to Three River Rift and took on a pilot, giving him one dollar to run the Rift. Then we continued down to Six Mile Creek and stayed all night. In the morning we ran down to the *Falls of* Oswego, took out our load, hired a pilot to run over the falls for two dollars, hired our goods carried over for two dollars, and employed a pilot to pilot us to Oswego for two dollars more. We arrived there about 5 o'clock P. M. The wind being fair, we concluded to load our stores and put out into the lake, although it was cloudy. We put out to sea about 7 o'clock P. M. on the 3d of June and ran all night. The next day we put into Pultneyville. We ran on to Genesee River, arriving there at half past 7 P. M. On the 5th and 6th of June we lay there wind-bound until about 5 P. M. Then we ran up to the inlet of Long Lake, about four miles, where we stayed all night, and in the morning put out and sailed up to Braddocks Bay, thence to Sandy Creek about seven miles, and there we put up for the night.

June 8th. We started early in the morning with a fair wind, and clear and pleasant, and put into Eighteen Mile Creek, obtained some bread and milk, then stood on to Twelve Mile Creek and camped. About fifty-one miles this day.

June 9th. Started with a fair wind. It rained very hard. We stopped at Niagara at about 12 o'clock and went to view the garrison at the fort, then put up the Niagara River to Lewiston.

VOYAGE FROM NIAGARA TO LAKE CHAUTAUQUA

June 10th. We went to get our boat hauled over the portage, but could not. I crossed over to Queenstown, Canada, to get it over the portage, returned and crossed with the boat and agreed with A. Brown to take it, with the baggage, for six dollars. I entered the boat at the collector's office for 50 cents.

June 11th. We loaded our boat and baggage onto two wagons at about 10 A. M. and passed slowly along with the boat and baggage. Had a very poor ox team to draw the boat. Thomas Isaac and I, walking a little ahead, went to see the famous falls of Niagara and then met the teams. The rest of the company then went to view the falls. We arrived at Chippawa about 5 P. M. without much difficulty or damage. Thomas and I began to unload, and when the rest of the company came up we ran the wagon into the river and launched the boat. We examined our baggage and dried some of it, much of it being all wet with the heavy rains that had fallen. It is a very fine day and dried up the mud smartly, the wind blowing high from the northwest. We ran up the river about two miles and put up at Mrs. Holden's.

June 12th. A fine, pleasant morning. We started for Buffalo and had a strong opposing current. We soon crossed over to the west channel and took dinner on Grand Island. Kept to the west side of the island, on the west side of the river, until we arrived at the ferry opposite Black Rock, where we crossed, and arrived about 17 minutes past 7 P. M. and put up for the night.

June 13th. In the morning we had a tight pull to get up the rapids, the wind being ahead. We took breakfast on the beach not far below Buffalo and arrived at Buffalo about 9 A. M., where we stopped, received and read letters, and wrote home. We discovered our boat leaked more than usual; drew her out on the beach and found we had started one of the nails in the seam on the bottom, and repaired it. We put our things on board at about 8 P. M., returned up the creek by the town, where we took up lodgings.

June 14th. We found all things safe, although there had been a hard wind and a heavy shower of rain in the night. We took breakfast at Buffalo, transacted our business, obtained some provisions, etc., and put out to sea 15 minutes past 12 o'clock. It rained hard, and but little wind. There were two schooners and a sloop which went out at about 30 minutes past 7 A. M. We passed along, using our oars, until about 2 P. M., when we came in sight of the three vessels standing on near our course. The wind began to blow a good breeze, and about 6 P. M. we came up with one of the schooners, called the "Buffalo Packet," the other vessels standing to the west. We spoke to the packet and found she was going to put into Cattaraugus Creek, where we intended to make a harbor. We passed the packet and ran into the creek about 35 minutes past 7 o'clock and took lodging, all being wet. We came about thirty miles. The schooner came in soon after us with several passengers, who were all wet as well as us. Some of them very seasick. We had a good harbor in this creek. The captain of the packet informed me that he intended to put out for Shaddocks Bay between 12 and 1 o'clock in the morning, so we concluded to start early to be in his company.

June 15th. All hands on board and we got under way 40 minutes past 3 A. M. and left the harbor. We soon caught up with the packet, which had sailed some time before us. At about 5 o'clock there came a very thick fog, so that we could see but a little way ahead, and we steered southwest and by south until about 30 minutes past 6 o'clock, with a light breeze from the N. N. E.; then the wind began to increase, the fog soon disappeared, we found we had gained on the schooner while running in the fog. The wind blowing a good breeze, we soon overhauled her near the bay where we intended to make harbor. Supposed there was a creek to put into and get breakfast, but when we arrived in Shaddocks Bay we found there was no creek there, and the wind blew so hard and the swells ran so high that we could not beat out of the bay again. We out with the anchor which we had made at Oneida Creek. This was the first time we tried to use it, so we did not know how it would hold, and now if it gave way we must go ashore. Though it was not rocky, yet the surf ran so high that it is probable it would injure our boat; but as high as the swells were, our anchor held, so that we did not drag more than four or five rods. We kept an oar out at the stern to keep the boat straight with the wind and she rode out the gale very safely, though it made R. Fowler and S. Dick very seasick, it not being for the first time. I borrowed the boat belonging to the schooner to come along side and take Sarah Dick, Betsy Isaac, Jacob Dick, with Charles, on shore, and left Thomas Isaac, Paul Dick, and myself to manage the boat as well as we could. R. Fowler was so sick that he did not feel like doing anything and instead of having a warm breakfast, which we expected, when we put about to run in, we were glad to take a piece of bread and raw pork, which relished very well with me. This place is about fifteen miles from the Cattaraugus Creek. When the wind abated, we got all on board, started for Portland, about fifteen miles farther up the lake, where we arrived about 10 o'clock P. M. It was with some difficulty that we found the harbor of Portland; not knowing the shore, we ran a great way out of our course to search the shore for fear we would run by the harbor, and then we would have found no harbor until we came to *Erie*. The shore of the lake, most of the way, was perpendicular rocks, so that there are but few good harbors. We hauled our boat up on the beach as far as we could and took lodgings.

June 16th. R. Fowler proposed to go across the portage to the Chautauqua Lake and then down the Ohio River. Jacob Dick and Paul Dick joined with him. Thomas Isaac and I were for keeping up the lake, but we consented to the voice of the majority, although it was much farther, but they said it was safer. We consented. Paul and Rudolphus went out and engaged two men with teams to take our boat and baggage across, for which we were to pay five dollars each. We loaded our boat and baggage, went about two miles to the four corners of Portland, and put up for the night.

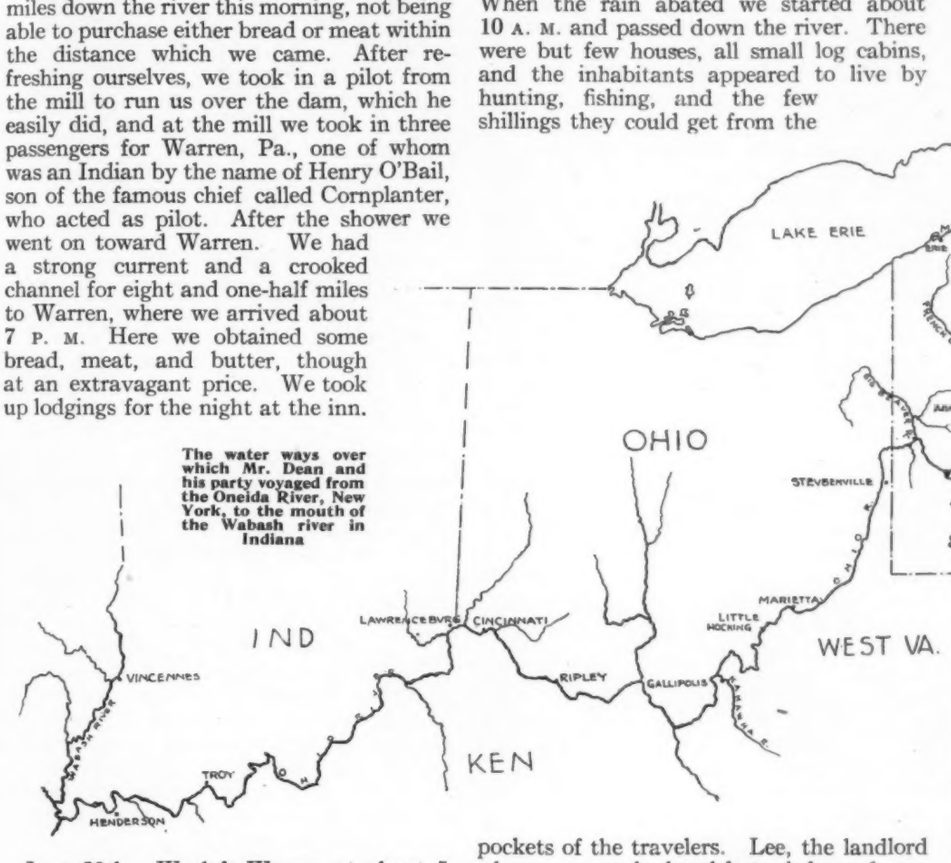
June 17th. We started with the teams and passed a very rough, hilly road filled with stumps, roots, and crossways over the land between the waters of Lake Erie and the Chautauqua Lake. The country was thinly settled and in some parts pretty good, and well timbered with some of the finest chestnut trees that I ever saw. We arrived at Mayville about 1 o'clock P. M. It is a small village on the northwest shore of Chautauqua Lake. The lake has very handsome shores and is well stocked with different kinds of fish. We left Mayville, went down the lake about sixteen miles against the wind, and put up on the northeast side of the lake at the house of a man by the name of Chene, where there was very good land with heavy timber.

VOYAGE FROM CHAUTAUQUA LAKE TO PITTSBURGH

June 18th. We started with a head wind and ran down to the rapids, where there are mills, with locks for boats to pass through. We went through them, and about one-half mile below we went to the village of Jamestown to get meat, bread, and cheese, but I could obtain no bread, nor pork under 30 cents per pound, and 18 cents for poor new skim milk cheese. It being about 12 o'clock, and having eaten very little this day, we had to dine on potatoes, crackers, and a fish which I bought for 9 cents. In the morning, being refreshed by our frugal meal, we embarked down the Chautauqua Creek, a small navigable stream with a quick current and a smooth bottom. It is fortunate for us that the waters are high at this time, or we could not go down, our boat drawing about twenty-one inches of water, and in a dry time there is not more than nine inches or a foot of water in the creek. We took in three passengers, one of whom was a good pilot, and we went down the stream, which was very crooked, with swift current, which made it difficult to sail. We passed down to the Casedaga Creek six miles, and there our pilot left us. The river was larger and the current very moderate, the bank low and the flats large. We passed down ten miles and came into Connewango Creek, which is a considerable stream. It comes in from the northeast, and there we put up at Captain Dollof's for the night. We obtained four quarts of milk, half a loaf of bread, and one pound of butter, of which we made a supper. Part of a bed was put on the floor for three of us to lie on. All were wet, there having been very heavy showers, which lasted almost all the afternoon.

June 19th. We called for our bill and the reply was $2, which astonished me. We reasoned with him until the avaricious wretch was satisfied with $1.50. We then

proceeded down the river, which was very crooked, but with a gentle current and a deep channel. The banks are low and frequently overflown by high water, and the soil is rich, though rather low for cultivation to advantage. We went about six or seven miles, when we came to a small stream called Still Water, which river is from seven to fourteen feet deep, and the passage easy to the rapids, which are about twenty miles, where we stopped and took breakfast on our scanty collection of food at the dam about half past 1 o'clock. We had two pigeons, a pheasant, and a small groundhog, which we picked up in our passage of twenty miles down the river this morning, not being able to purchase either bread or meat within the distance which we came. After refreshing ourselves, we took in a pilot from the mill to run us over the dam, which he easily did, and at the mill we took in three passengers for Warren, Pa., one of whom was an Indian by the name of Henry O'Bail, son of the famous chief called Cornplanter, who acted as pilot. After the shower we went on toward Warren. We had a strong current and a crooked channel for eight and one-half miles to Warren, where we arrived about 7 P. M. Here we obtained some bread, meat, and butter, though at an extravagant price. We took up lodgings for the night at the inn.



The water ways over which Mr. Dean and his party voyaged from the Oneida River, New York, to the mouth of the Wabash river in Indiana

June 20th. We left Warren at about 5 A. M. with our own company and ran down the river to Broken Straw, about twelve miles, a stream which comes in from the northwest; then passed down about thirty-four miles, went on shore and fried bacon and boiled potatoes, not having bread sufficient. We went on board and ate our dinner. We got some wet, there being a very heavy shower, which our sails did not completely shelter us from. We started two or three deer from the river, which R. Fowler went in pursuit of, and got a chance to shoot at one, but did not hit him. We saw them again, when J. and Paul Dick went in the chase, but did not kill any. Night drawing near, and having the appearance of rain, we went down the river with our oars at work. We soon saw another deer in the river, which we fired at, but did not get. It became foggy and I expected rain, so we ran down to Oil Creek, about seven or eight miles farther, and put up about a mile and a half from the place where the Seneca oil is found on the waters of the creek, but the water is so high now that the place where the oil issues from the earth could not be seen. We came down the river today fifty-three miles, although we had a strong head wind through the day.

June 21st. We left Oil Creek at 10 minutes past 5 A. M., went down seven miles to Franklin, at the mouth of French Creek, ran in there to get some bread, when it began to rain, and we took breakfast. When the rain abated we started about 10 A. M. and passed down the river. There were but few houses, all small log cabins, and the inhabitants appeared to live by hunting, fishing, and the few shillings they could get from the pockets of the travelers. Lee, the landlord where we took breakfast, informed me that there were large settlements in the country back from the river, but there was but very little grain raised; that the land had a very good appearance, but did not produce well after two or three crops. He said that the frost had injured their crops very much for some time back. After the rain stopped we went on down the river with the current, helped by our oars, to a place called Miller's Eddy, about fifty-eight miles, and put up at an unfinished house.

June 22d. Started about half past 4 A. M., ran down the river, procured some bread on shore, took breakfast, continued on down, and passed Armstrong, a small village on the south side of the river. It is the county seat of that county, forty-five miles above Pittsburgh. We put into shore and stopped at a house two miles below Freeport. From there, passed on down to a place called Mechanicsburg, on the south side of the river. It consisted of several small houses, most of them abandoned by the inhabitants, four families only living there, and they so poor they could afford us no relief or lodging. It rained very hard. We crossed over the river and found poor lodging on the opposite shore, where we put up, having come about seventy-two miles. We were now within about ten miles of Pittsburgh.

June 23d. We started about half past 4 A. M. and ran down the river, passing three arks with families going down the river; arrived in Pittsburgh about 6 A. M., where we put in for provisions and to get breakfast. I wrote home, and after breakfast our curiosity surpassed our anxiety to proceed, so we went to see some parts of the town, the steam factories, viz.: a saw mill, grist mill, nail factory, rolling mill, and the Flint Glass Works, which was not then in operation, but we went into the warehouse, where we saw some of as good glassware as is brought from England or India. We also went to see the flour mills. The town is well situated on the point, but it might be very considerably improved in beauty of appearance. Their manufactories are most interesting and surprising. Not getting our supplies and not satisfying our curiosity, we were not yet ready to start until about 6 P. M., and then we concluded to put up for the night at our landing place at Shepherd's. I would be glad to give a more particular description of Pittsburgh, but time will not permit.

VOYAGE FROM PITTSBURGH TO CINCINNATI

June 24th. We started 30 minutes past 3 A. M. from Pittsburgh. The morning was very foggy and continued thick until about 8 A. M. We passed Big Beaver, a stream putting into the Ohio, and then sailed on with a gentle and smooth current. Took breakfast on board, then ran down to Steubenville, where we went on shore to get fire, some bread, etc. We had not time to take a view of the town as we wanted to, because we were rushing to pass on our

journey down to Big Grave Creek, making 112 miles this day traveled.

June 25th. In the morning it was foggy, but cleared off, and we ran down to Beaver Creek, which we called eight miles by the current, then went down, passing several islands and many points, until we came below States Creek, then running on our oars and by the current until we came to the (name uncipherable in original manuscript). We put in and stayed all night near an island called the Three Brothers.

June 26th. Started at 5 A. M. and ran down to Marietta, about ten miles. We put in there for breakfast and water, waiting until it stopped raining. We passed the Little Kanawha River 45 minutes past 4 P. M. and then went down to Blennerhassett Island, where we went on shore and saw a beautiful landscape with very fertile soil. The elegant buildings that formerly stood on it were consumed by fire, and their chimneys were only to be seen from a distance. We passed by Little Hockhocking and then Big Hockhocking on the right side at 15 minutes past 7 P. M. We passed Belleville at 45 minutes past 9 P. M. and concluded to run during the night, it being dark. We ran all night, but had little chance of seeing much of the shore or many of the islands we came upon. Forty-one miles today by daylight.

June 27th. Before day we passed Letart Rapids and down by the Great Kanawha River and so down by Gallipolis, running on all day and all night, passing several villages and tributary streams.

June 28th. We passed the Canseonnique Creek about 5 A. M. and down to Lime, or Maysville Stone, at 5 P. M., where we got more provisions. This is a handsome town on the left side of the river. From here we passed down to a small village called Ripley, about ten miles below Limestone Creek, where we put up, being about 248 miles below Marietta. I was unwell, having taken cold by being out the night before and lying in the heat of the sun the next dav.

June 29th. We left Ripley in the morning and passed by Augusta about 10 A. M., arriving at Cincinnati at 9 P. M., where we put up for the night.

VOYAGE FROM CINCINNATI TO THE MOUTH OF THE WABASH RIVER

June 30th. In the morning we expected to wash our clothes and spend the day at *Cincinnati*. We ran two nights to get there, but not finding a convenient place for washing, we took a view of the steam mills, town, etc. I went to look for Robert Hunt, but found he had moved eight miles from town, so I was not able to see him. We concluded to take in provisions, etc., and start down the river, and after taking a preliminary sail on the river with four passengers and after passing General Harrison's Seat, came to Lawrenceburg at about 9 P. M., twenty-nine miles below Cincinnati. We expected to put up here for the night, but could not get lodging to our satisfaction. We left three of our passengers, but one continued with us to the Falls of the Ohio. We started at about 10 and ran all night.

July 1st. We passed Port Williams on the Kentucky River in the morning, and stopped at West Port to take dinner, then ran down to New London and put up for the night. On the 2d we went to Louisville, arriving at 8 P. M. Here we obtained lodgings, being about 180 miles from Cincinnati. This is a handsome town of Kentucky.

July 3d. I wrote home, and started about 9 A. M. to run down to the falls. We passed over them without any difficulty; nothing to be seen of them except a strong current and a ripple on the right side near shore. Passed Salt River about 3 P. M. In the evening we put up about 8 P. M., Jacob Dick being unwell.

July 4th. We continued our voyage, Jacob Dick being some better. We sailed all day down the pleasant current of the Ohio and only went on shore to get some vegetables, etc. Not finding a suitable place to lodge, we concluded to run all night, and so passed on throughout the night.

July 5th. We continued our voyage until we stopped for breakfast, then ran down to Anderson's Ferry, put in, and crossed over to the opposite shore to Troy to get good water. In the evening ran down about three miles, and with some difficulty got lodging on a floor.

July 6th. We passed down eight or ten miles and took breakfast on the shore near a house where a woman had a young child. After breakfast we started with a good breeze, though ahead, and beat down to the Yellow Banks; passed the village at that place about 3 P. M., but not stopping. We continued for about two miles and put in shore to be sheltered from a very heavy shower which we were threatened with. Here we obtained our dinner at the house of a very hospitable gentleman of Kentucky, and there being a very heavy storm of rain, wind, and thunder, we put up for the night with him.

July 7th. We ran down to near the Frenchman's or Three Mile Island, about fifteen miles, and put in for breakfast. We found the people in this place, as well as in many other places where we stopped, very poor. There were no seats or furniture in the house, so we cooked our food, took it on board, and ate as we sailed. The wind became fair and we ran down before a light breeze to below Pigeon Creek, then beat down about two or three miles to the Red Bank at the village of Henderson, Ky., where we stopped at about half past 8 P. M. After some time I found poor lodgings for our company. We thought of walking out to see a steam mill, but in the morning we concluded not to.

July 8th. We understood that the steam mill would not be in operation through the day, and finding the poverty of the place to be so great, we concluded to cleanse our boat and proceed, for we could get neither flour, meal, milk, butter, nor cheese, and our stock was small. We thought best to run down farther, although we had not eaten since we took breakfast at Frenchman's Island. After our boat was cleansed, we reloaded, passed down the river five or six miles to the place of a wealthy planter of Kentucky, who had many slaves, from one of whom we bought some onions and cucumbers. The gentleman was very polite to us and furnished us with greens, squashes, etc. He had a fine plantation and about one hundred slaves in different parts of his lands. We started about half past 11 A. M., went down the river and took our breakfast as we sailed. The wind was ahead, as it usually was. We sailed till near sundown, then went on shore near Straight Island, made a fire, and cooked our supper. We concluded to run down to the mouth of the Wabash in the night. The boatswain and I took the watch, the rest turned in about 10 P. M., and we went to near the head of Wabash Island. We concluded to go ashore for fear of passing that river unnoticed, as it was very dark. We called all hands and ran ashore, made fast to some willows about 1 A. M., and lay down to sleep on the boat.

July 9th. We started early and ran down by the island to the mouth of the Wabash River. The description by the Navigator of the river, etc., published in 1817, I cannot vouch for. I am convinced it is not correct in all respects, viz.: at the Frenchman's or Three Mile Island it appears to be erroneous, but according to his statement it is 1,003 miles to the mouth of the Wabash River, where we arrived this morning at 6 A. M. Here we turned into the river and passed up four or five miles and landed for breakfast about 9 A. M. As far as we have come we find the Wabash to be a fine river about 250 or 300 yards wide, with a gentle current, though it is expected that the current will be stronger as we ascend. In passing the waters of the Ohio it was not so much to our disadvantage that it rained nearly every day, for it raised the river fifteen or twenty feet above low water mark, which made it safe and easy passing down.

VOYAGE FROM THE MOUTH OF THE WABASH RIVER TO VINCENNES

July 9th, 1817. We arrived in the mouth of the Wabash River at about 6 o'clock A. M. after passing 1,003 miles on the Ohio River, 30 miles on the Chautauqua Lake and its waters; the Conewange River, 25 miles; Allegheny River to Pittsburgh, 197 miles; total, 1,255 miles; the grand total route we came from home, 1,546 miles. Being a long time on our way, and in much rain, we concluded to lay by and wash some of our clothes and clean ourselves. So we ran up the Wabash River four or five miles and went on shore, took breakfast, and made a wash. I was quite sick by taking a drink

Continued on page 76)

OF INTEREST TO THE SKIPPER

THE accompanying photograph shows the Mary Louise which together with her sister ship Roberta have just been completed at the yard of L. D. Steel, Delanco, N. J. for the Republic Mining & Mfg. Co. from designs and under the superintendence of J. Murray Watts, N. A. of Philadelphia. Each of these tugs is equipped with a 90-100 h. p. Kahlenberg heavy oil engine which turns a 46 in. by 46 in. three bladed propeller 350 R. P. M. These boats are intended for the heaviest class of work, being built of oak throughout, and will be used for towing 500 tons of bauxite, which is the name of the ore from which aluminum is taken, in barges from the company's mines to Georgetown, British Guiana, S. A.

The general dimensions are: Length, 47 ft.; beam, 12 ft.; draft running about 4 ft. 8 in. They will be shipped down this month on board one of the company's steamers. These tugs are an improvement over a similar class of tug recently shipped to Demerara, for the same company, which were also designed by J. Murray Watts, but powered with a 75 horse power gasoline engine. This engine was also equipped for burning kerosene, but owing to the high price of gasoline and kerosene in South America, it has been decided that the tug boat fleet for this company shall in future use heavy oil engines, which can burn the local fuel oil and affect a great saving in running expenses.

A husky little boat is Mary Louise recently built from plans by J. Murray Watts

The Romance of Oakum

THE name of oakum suggests at once the stately sailing ships once the pride of the seas, which being entirely of wood, needed to be kept tight by means of the oakum with which their seams were caulked. The tarry odor of oakum and the music of the caulking mallet have, thanks to the revival in wood ship-building, brought about by the shortage of tonnage since the war, become once more familiar features of American shipyards. It would be a mistake, however, to suppose that oakum is used only in connection with wood shipbuilding, because this useful material is also used extensively in ships of steel construction.

But, first, what is oakum? An interesting publication entitled *Useful Facts About Oakum*, just issued by the George Stratford Oakum Co., of Jersey City, can enlighten us on this subject. This company, by the way, was founded as far back as 1860, and today enjoys the largest output of any oakum manufacturer in the world.

All oakum, then, is made of soft vegetable fibre, such as hemp and jute, impregnated with pine tar. In general, oakum is divided into two classes, known as Marine and Plumbers' Oakum.

Marine Oakum is used for all forms of marine caulking work, such as seams of vessels, decks of vessels and caissons. This oakum is made entirely of hemp,

Marine oakum is divided into various grades. In the general trade, there are three grades of unspun oakum and three grades of spun oakum. The grades of Marine Oakum are known as New Best, Best, U. S. Navy and Navy, and are made both spun and unspun. The raw material for all these grades of oakum must be imported from Europe, and during the European war it has been necessary to use such material as was obtainable. Very often this material could not be made into these regular grades.

Plumbers' Oakum is used for caulking all kinds of pipe, such as bell and spigot, iron, soil, water supply, waste, sewer and gas. Plumbers' Oakum was established in 1891 by the Geo. Stratford Oakum Co.

Plumbers' Oakum is divided into four grades known as Plumbers' Spun, Plumbers' Coiled, Plumbers' Navy and Rope Oakum.

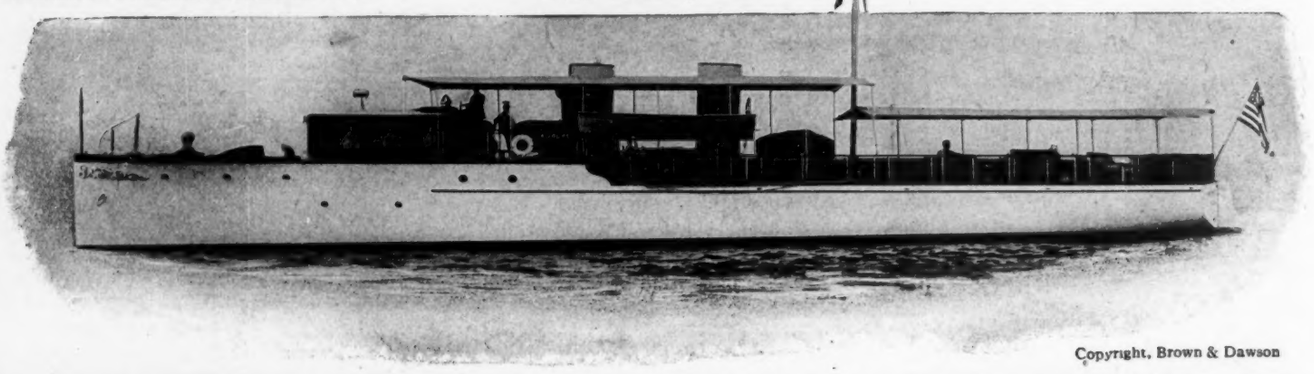
New Best Oakum, which is made solely by the Geo. Stratford Oakum Co., and has never been made by any other manufacturer, is manufactured strictly from new Russian hemp and hemp tows, tarred with the finest quality of Stockholm tar. It is noted for its attractive color and distinctive odor, Stockholm tar having a different odor from that of any other tar in the world. It contains almost no waste whatever, being made of new material; it is clean and free from knots or yarns which appear in all oakum made of old rope.

Next to New Best Oakum, Best Oakum is the highest grade of oakum. It is made from old tarred Russian and Italian hemp rope, mixed with a certain percentage of new hemp freshly tarred. The fibre is long and well finished, as free as possible from lumps and yarns, and contains less waste than the lower grades. Because of its quality, larger quantities are sold of this grade than any other.

U. S. Navy Oakum is known as the middle grade. The fibre is not quite so long as that in Best Oakum. It contains somewhat more waste than Best Oakum although not as much as the third grade. It is usually the best Oakum that can be produced for the differential in price between it and Best Oakum.

Navy Oakum is the lowest grade of marine oakum manufactured. The fibre is considerably shorter than that of the U. S.

Built by **LUDERS**
Marine Construction Co. **Stamford, Conn.**
The last word in yacht design and building



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Aurore, a 96-Footer, built by us for Mr. Stuart Wyeth.

Navy and the waste runs somewhat higher; the oakum is not as well finished. Navy Oakum is used to a small extent in this country, the largest proportion of it being exported to South America.

The grades of New Best, Best, U. S. Navy and Navy are manufactured both in carded unspun form and in machine spun form, put up in balls or hanks, at an additional cost over the unspun of about 1c per lb. Unspun Oakum, before it can be used, must be spun by hand, at an average cost of from 3 to 5c per lb., whereas machine spun oakum is ready for use when it leaves the factory, or with a slight respinning. It contains considerably less waste than its parallel grade in unspun, and brings the user a large saving over the cost of the unspun oakum after the hand spinning. The oakum is first wound into what are known as balls, which unwind from the center like a ball of twine, or in hanks such as a hand spinner makes after spinning the carded oakum. The silver or thread of this oakum runs from about 43 to 75 ft. to the pound, the lower grades being shorter or heavier thread; the average thread in Spun Best Oakum is about 55 ft. to the pound.

Cotton is also used for the caulking of seams in conjunction with oakum. Many yards prefer to make the innermost caulkings of cotton, with oakum as the next caulking in between the cotton and the pitch. Caulking cotton is also used for small boat work, where oakum cannot be brought down to a small enough thread.

Another variety of caulking calls for the use of Sheathing Felt, which is made principally of jute fibres, pressed together, impregnated with tar and pitch. Sheathing Felt is impervious to water and is used between steel and wooden decks, between wooden partitions of various kinds and between planking and copper sheathing on bottoms.

There are many more varieties of oakum than those described above, which only embrace the range of marine work. The book is illustrated with photographs of vessels in which Stratford Oakum has been used. These range from the large U. S. battle ships *Oklahoma* and *Michigan* to the replica of Fulton's *Clermont*. The closing sentence of the descriptive part of the book is worth quoting:

"Good oakum in the seams of a vessel is like good red blood in a man's veins, and the older the vessel the more she needs good caulking."

Whale Hunting

OF all the stories with the sea few are more fascinating than that of whale-hunting. Describing in the Empire Review whale hunting in the North Atlantic, Ford Fairford says: "The steamers usually set out at the dawn of day, when the whales visit the surface to 'blow.' The vessels are about 100 tons and can command a speed of 12 knots an hour. They are equipped with the modern harpoon, an instrument composed of two bolts of iron four feet long armed with movable barbs. This is fired from a gun at the bow of the vessel, and the explosive bomb never fails to accomplish its mission in two seconds after being fired. The cable attached to the harpoon and the ship holds the whale securely until he is played out, after which he is pumped buoyant; that is, filled with hot air from a pipe at the boiler, and then he is left upon the surface of the water until the termination of the day's hunt, when he is towed to the flensing slips of one of the various factories along the coast.

"The sperm whales are the most coveted, but they are not so numerous as the other varieties in the North Atlantic. The length of the sperm is about 75 feet, his weight 90 tons, and he yields something like 25 tons of oil. He is not difficult to kill, swims low, and is distinguishable by his double blow hole. The hunters generally "fish" them in a three-mile circle, and if once they can be confined to that area the killing of them presents no difficulty. They are caught between June and September in the vicinity of the Funk Islands, the home of halibut, the sperm whale's favorite dish. As many as nine halibut have been taken out of the body of a dead sperm. They are also extremely fond of sharks. Only a short time ago a sperm whale was captured near the Funks, which yielded from its head alone 98½ casks of oil containing 46 gallons each, held in its stomach a shark 9 feet long, three large halibut and 50 codfish of various sizes.

"The blue or sulphur whales are the first of the various species to show themselves early in the spring. They are probably the least pugnacious, and consequently easy to kill. A peculiarity of the sulphur whale is its enormous appetite. Its favorite food is the grill, a very small fish called the "miniature sea-urchin.' When these whales have taken in their fish, they come to the surface to blow out the water and swallow the meal at leisure. A good sulphur will measure 90 feet in length. The most valuable part is the blubber, which is taken off in strips like slices of bacon, dropped into a boiler and rendered into oil. The meat is cut up and boiled into a fertilizer.

"A third variety is the hump-back. The

(Continued on page 77)

MATTHEWS CRAFT

ASK ANY OWNER

"Quality Without Extravagance"

The Matthews Boat Co. Marine Railways Storage Basin and Works **Port Clinton, Ohio**

In The "Pres. Lincoln" Disaster Sick, Helpless Men Were Kept Safe, Warm and Dry in the

Ever-Warm Safety-Suit

M. A. RODGERS, Chief Electrician of the "President Lincoln," says:

"I was lying in bed sick. A suit (an Ever-Warm Safety-Suit) was handed to me. I put it on and jumped. I was surprised to find it was keeping me warm and dry, perfectly upright.... I remained in my suit ....until rescued."

H. D. CARTER, Yeoman on the "President Lincoln," says:

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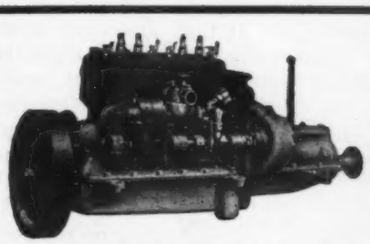

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A 5 Foot Dinghy

(Continued from page 55).

The construction is somewhat unusual as the bottom plank is put on in two thicknesses of 3/16" each, running in one length fore and aft from the gunwale at the bow to the gunwale at the stern. Between these two layers of bottom planking is run a layer of linen laid in paint. In order to make the hard bend in the bottom planks at the bow and stern, it is necessary to steam the plank thoroughly. The steaming should be done over forms, and the plank allowed to dry out for several days before being put on the boat; otherwise it will shrink away, leaving a bad seam between the planks.

The sides are of ⅜" cedar laid fore and aft, and the bilge stringers on the sides are scarphed into very light hackmatack knees, as shown. The strongbacks under the seats are designed to prevent the seats from settling under the weight of the oarsmen, and the construction shown has proven to be absolutely rigid in practice.

It will be noted that there is only one set of oar lock sockets. When one man is in the boat, he rows from the middle seat; when there are two men in the boat, one rows from the end seat, using the same oar lock sockets.

The oars are fitted with ring oar locks which encircle the handle of the oar, and a leather collar on the oar prevents the oar lock from slipping off. In this way, there is no trouble in keeping track of oar locks, as they cannot become separated from the oar.

The boat can be lifted on board by one person without the use of any tackle whatever, as she is very light in weight.

The advantages of this little boat are, compactness, lightness, handiness, stability, carrying power, easy rowing and handling qualities.

The Cruise of the Yakaboo

(Continued from page 59).

looking forward to sailing about in the Drake Channel, for in many ways it is ideal canoe water. Here is an inland sea with a protected beach at every hand, blow high or low. Columbus may have been far off when he named them the "Eleven Thousand," but as I sit here and glance at the chart I can count fifty islands with no difficulty, all in range of forty miles. The Virgins are mountainous but much lower than the lesser Antilles and while they are volcanic in origin they do not show it in outline and must be of a much older formation than the lower islands. They are the tail end of the range which forms Cuba, San Domingo, and Porto Rico.

In the morning I was again on the summer sea of the channel. We had cleared Virgin Gorda and were lazing along toward Ginger when I saw the mottled fin of a huge devil fish directly on our course. I was in no mind to dispute his way—not being familiar with the disposition of these large rays—so I hauled up a bit and let him pass a hundred feet or so to leeward. I stood up and watched him as he went by and swore that some day I would harpoon just such a fellow as that from a whale boat and take photographs of the doing. Just now I was leaving him alone. His fin, mottled brown and black like the rest of his upper surface, stood nearly three feet high and I judged his size to be about eighteen feet across from tip to tip.

On the afternoon of July Fourth I was bundled aboard the *Lady Constance*, together with the *Yakaboo*, and in the evening we sailed into the Danish port of Charlotte Amalia. So here ends the cruise of the *Yakaboo* after nearly six months of wanderings in the out-of-the-way places of that arc which swings from Grenada to St. Thomas. Six months may seem a long time to you of the office who at the most can get a month of it in the woods or along shore, but to me these months had been so full of varied interest that they were a kaleidoscope of mental pictures and impressions, some of them surprisingly unreal, that I had gone through in weeks. Had it not been for the heat I should have kept on and cruised along Porto Rico, San Domingo, and Cuba, crossing the large channels by steamer if necessary.

To this short summary of the best cruising yarn of the year, merely a fragment of the whole interesting story has been quoted and all of my shipmates who like to read a good yarn of a long and pleasant cruise in an out-of-the-way corner of the world, will find it well worth while to buy a copy of the book—*Alone in the Caribbean*, written by Frederic A. Fenger and published by Geo. H. Doran Co. of New York City.

The Log of an Inland Cruise in 1817

(Continued from page 70).

of buttermilk and water. The Wabash appears to be a handsome river, about 270 yards wide, its current smooth and not very rapid, with handsome sandy banks, though subject to be overflown by the water for several miles on each side, so that at times the river spreads to the width of ten or fifteen miles, and some said twenty miles; that the banks could not be settled with safety, therefore we found but few houses. We got through with our wash and dinner and all on board about 7 P. M., and rowed upstream about four and one-half miles to a house on the Indiana shore and took lodgings on the floor.

July 10th. We concluded to take breakfast before we started, so we cooked on shore, took breakfast, settled with our host, John McDaniel or Donil, and started about 8 or 9 A. M. It was said that we were ten miles from the mouth of the Wabash and two

miles from the Ohio River. We had a fair wind, though very light, and soon found that the navigation of the river was obstructed in some places by large bars of fine sand, which in many places extended one mile across the river, and the water was not more than twelve or eighteen inches deep, while in the channel it is five or six feet. We here found the current to be stronger, though it was very smooth. The bank of the river was from ten to fifteen feet high, and by the appearance of the leaves on the flats the water flowed eight or ten feet on them. In times of high water the land on the shore in some places appeared to be very rich and fertile and in other places not so good. About 2 P. M. we had a shower of rain, then the wind became ahead, though it was not hard. We ran up to within a half mile of what is called the Little Cutoff. About 30 minutes past 5 P. M. we went to cook dinner. We were told that we had come sixteen miles, and were four miles from the Ohio River. We took dinner, it being near sunset. No other house nearer than ten miles on the river, and passage up the river difficult, it was thought best to put up for the night, and we lay on the floor. We came about sixteen miles this day.

The Log of the Voyage of Thomas Dean will be concluded in the September number

Whale Hunting

(*Continued from page 72*)

habits of the hump-back are similar to those of the sulphur, except that it exhibits a passionate fondness for herring and white fish. The whalers will tell you that an interesting trait of the hump-back is his apparent grief at the loss of his female companion—if a "cow" is taken the "bull" has no desire to live, and will often deliberately seek death at the hands of his pursuers.

"The fourth variety found in the North Atlantic is the fin-back. As many as three hundred and fifty have been caught in one season. One fin-back will yield as many as thirty casks of oil.

"The procreative processes of whales are extremely interesting. A 'cow' usually carries her young nine months before it is emitted to the water. When born it is from eighteen to twenty feet long. Usually a 'cow' bears one child at a time, rarely does she give birth to twins.

Some whales are great fighters, and few sights are more enthralling than a battle between a valiant fighter and the deadly harpoon. The moment he is struck he plunges below the surface, where he often remains for 20 minutes before reappearing. When he reappears he blows out a great stream of blood that makes the surrounding water a veritable battlefield. The fight may be prolonged for a considerable time, according to the vulnerability or otherwise of the spot where the bomb has exploded.

"As soon as the whale have been towed from the slaughterhouse to the flensing slip (a sloping wharf along which the body of the whale is dragged by heavy chains and a windlass into the factory) the operation of cutting up takes place immediately. The flensers take their long knives and remove the outer coat of blubber from 18 inches to two feet wide. Great joints of meat are passed through a machine that cuts them into thin slices. The next phase is the extraction of the oil by means of heated vats. When the oil has been drawn off, the remains are manufactured into a fertilizer for use in the cotton plantations of the Southern States of America. The teeth of the whale are cleaned, dried in the sun, and prepared for the markets of the United Kingdom and the United States.

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